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(FILE 'HOME' ENTERED AT 13:31:37 ON 09 JAN 2003)

FILE 'HCAPLUS' ENTERED AT 13:31:43 ON 09 JAN 2003

FILE 'REGISTRY' ENTERED AT 13:31:45 ON 09 JAN 2003

 E SULFITE/CN
L1 1 S E3
 E SODIUM SULFITE/CN
L2 1 S E3
 E SULFUR DIOXIDE/CN
L3 1 S E3

FILE 'HCAPLUS' ENTERED AT 13:33:11 ON 09 JAN 2003

L4 39941 S L1 OR L2 OR SULFITE# OR SULPHITE#
L5 67714 S L3 OR SULFUR DIOXIDE#
L6 18365 S PROTEIN# (L) (SOY? OR WHEY)
L7 766 S PROTEIN# (L) SULFONA?
L8 1 S L7 AND L6 AND L4
L9 56 S L6 AND L4
L10 15 S L7 AND L6
L11 5378 S L6 (L) (PREPN OR PREPAR? OR PREP/RL OR PROC/RL OR ISOLAT? OR
L12 25 S L11 AND L4
L13 4760 S L4 (L) (RACT OR RCT)/RL
L14 2 S L12 AND L13
L15 5162 S L5 (L) (FORMAT? OR FMU/RL OR FORM/RL)
L16 2 S L15 AND L6
L17 10 S (L10 OR L12) AND (PPT# OR PRECIP? OR PRECIP?/AB OR PPT#/AB)
L18 12 S L17 OR L16 OR L14 OR L8

=> fil reg

FILE 'REGISTRY' ENTERED AT 13:40:35 ON 09 JAN 2003
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:8 JAN 2003...HIGHEST RN 478480-50-1
DICTIONARY FILE UPDATES: 8 JAN 2003 HIGHEST RN 478480-50-1

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

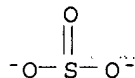
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d que 11;d 11

L1 1 SEA FILE=REGISTRY ABB=ON PLU=ON SULFITE/CN

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 14265-45-3 REGISTRY
CN Sulfite (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Sulfite (SO32-)
CN Sulfite dianion
CN Sulfite(2-)
CN Sulfurous acid, ion(2-)
CN Sulphite
FS 3D CONCORD
MF O3 S
CI COM
LC STN Files: ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS,
CASREACT, CEN, CHEMCATS, CIN, CSNB, EMBASE, GMELIN*, IFICDB, IFIPAT,
IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, USPAT2, USPATFULL
(*File contains numerically searchable property data)



3894 REFERENCES IN FILE CA (1962 TO DATE)
66 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
3903 REFERENCES IN FILE CAPLUS (1962 TO DATE)

=> d que 12;d 12

L2 1 SEA FILE=REGISTRY ABB=ON PLU=ON "SODIUM SULFITE"/CN

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS

RN 7757-83-7 REGISTRY

CN Sulfurous acid, disodium salt (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Anhydrous sodium sulfite

CN Disodium sulfite

CN Disodium sulfite (Na₂SO₃)

CN S-WAT

CN Sodium sulfite

CN Sodium sulfite (Na₂SO₃)

CN Sodium sulfite anhydrous

AR 10579-83-6

DR 68135-69-3

MF H2 O3 S . 2 Na

CI COM

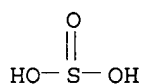
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO,
CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES,
DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPAT, ENCOMPAT2, GMELIN*,
HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC,
PDLCOM*, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2,
USPATFULL, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

CRN (7782-99-2)



2 Na

8498 REFERENCES IN FILE CA (1962 TO DATE)

137 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

8508 REFERENCES IN FILE CAPLUS (1962 TO DATE)

=> d que 13;d 13

L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON "SULFUR DIOXIDE"/CN

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS

RN 7446-09-5 REGISTRY

CN Sulfur dioxide (8CI, 9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Sulfur superoxide (6CI)

OTHER NAMES:

CN Fermenticide liquid
CN Sulfur dioxide (SO2)
CN Sulfur oxide
CN Sulfur oxide (SO2)
CN Sulfurous acid anhydride
CN Sulfurous anhydride
CN Sulfurous oxide
CN Sulphur dioxide
FS 3D CONCORD
DR 12396-99-5, 8014-94-6, 83008-56-4, 89125-89-3
MF O2_S
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS,
BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU,
DETERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,
ENCOMPPAT, ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA,
MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*,
SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(*Enter CHEMLIST File for up-to-date regulatory information)

O=S=O

59675 REFERENCES IN FILE CA (1962 TO DATE)
212 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
59690 REFERENCES IN FILE CAPLUS (1962 TO DATE)
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 13:40:53 ON 09 JAN 2003
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FILE COVERS 1907 - 9 Jan 2003 VOL 138 ISS 2
FILE LAST UPDATED: 8 Jan 2003 (20030108/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use

the CAS Roles thesaurus (/RL field) in this file.
 'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d his l4-

FILE 'HCAPLUS' ENTERED AT 13:33:11 ON 09 JAN 2003

L4	39941 S L1 OR L2 OR SULFITE# OR SULPHITE#
L5	67714 S L3 OR SULFUR DIOXIDE#
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L12	25 S L11 AND L4
L13	4760 S L4 (L) (RACT OR RCT)/RL
L14	2 S L12 AND L13
L15	5162 S L5 (L) (FORMAT? OR FMU/RL OR FORM/RL)
L16	2 S L15 AND L6
L17	10 S (L10 OR L12) AND (PPT# OR PRECIP? OR PRECIP?/AB OR PPT#/AB)
L18	12 S L17 OR L16 OR L14 OR L8

=> d .ca l18 1-12

L18 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2003 ACS.
 ACCESSION NUMBER: 1999:708561 HCAPLUS
 DOCUMENT NUMBER: 131:297350
 TITLE: Method for isolation and modification of proteins
 INVENTOR(S): Savolainen, Jouko
 PATENT ASSIGNEE(S): Finland
 SOURCE: PCT Int. Appl., 25 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9955170	A1	19991104	WO 1999-FI347	19990428
W: AU, NZ, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FI 9800945	A	19991030	FI 1998-945	19980429
AU 9937123	A1	19991116	AU 1999-37123	19990428
AU 749685	B2	20020704		
EP 1076489	A1	20010221	EP 1999-919299	19990428
R: AT, DE, DK, ES, FR, GB, IT, NL, SE, IE				
PRIORITY APPLN. INFO.:		FI 1998-945	A	19980429
		WO 1999-FI347	W	19990428

AB The invention concerns a method for isolation of proteins from whey or soy and for modification of the proteins isolated, according to which method:
 (a) whey or soy or a conc. thereof is brought into contact with a reagent that forms sulfite ions in order to sulfonate the protein, and optionally
 (b) the sulfonated protein is pptd. at an acid pH, and (c) the sulfonated protein or the pptd. and sol. sulfonated protein is recovered and optionally processed further.

IC ICM A23J001-20

ICS A23J003-08; A23J003-16; A23C009-00; A23C021-00
 CC 9-16 (Biochemical Methods)
 Section cross-reference(s): 17
 IT **Proteins**, specific or class
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (Sulfonated; method for isolation and modification of proteins)
 IT **Precipitation** (chemical)
 Soybean (Glycine max)
 Sulfhydryl group
 Whey
 pH
 (method for isolation and modification of proteins)
 IT **Proteins**, general, reactions
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (soybean; method for isolation and modification of proteins)
 IT **Proteins**, specific or class
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (whey; method for isolation and modification of proteins)
 IT 7446-09-5, Sulfur dioxide, formation
 (nonpreparative)
 RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
 (method for isolation and modification of proteins)
 IT 14265-45-3, Sulfite
 RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
 (method for isolation and modification of proteins)
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1998:543797 HCAPLUS
 DOCUMENT NUMBER: 129:274955
 TITLE: Effect of salts on soy storage proteins defatted with supercritical CO2 and alcohols
 AUTHOR(S): Sessa, David J.; Nelsen, Terry C.; Snyder, Janet M.
 CORPORATE SOURCE: Plant Polymer Research, NCAUR, USDA, ARS, Peoria, IL, 61604-3902, USA
 SOURCE: Journal of the American Oil Chemists' Society (1998), 75(8), 911-916
 CODEN: JAOCA7; ISSN: 0003-021X
 PUBLISHER: AOCS Press
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The primary objective was to det. whether salts will stabilize soy storage proteins against the denaturing effects of alcs. or the heat and pressure used in supercrit. CO2 during the defatting process. Nitrogen soly. index (NSI) and differential scanning calorimetry (DSC) were used to monitor the denaturation of proteins. A variety of salt solns. used to hydrate full-fat soy grits increased the thermal stability of both 7S and 11S storage proteins. DSC was used to monitor their denaturation temp. Neutral salt hydrations followed the lyotropic series for protein stabilization. Of the salts evaluated, the test results indicate that the

reducing salt, sodium sulfite, and the neutral salt, sodium sulfate, when used to steep beans, yielded significantly higher NSI than did the water-steeped controls or other salt treatments after partial defatting with abs. isopropanol or ethanol and supercrit. CO₂. However, these same salt treatments did not as effectively stabilize the proteins against the denaturing effects of ethanol more aq. than 84% when these alcs. were used as the defatting medium.

CC 17-4 (Food and Feed Chemistry)

IT **Proteins**, specific or class

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(storage; effect of salts on soy storage proteins defatted with supercrit. CO₂ and alcs.)

IT 127-09-3, Sodium acetate 7558-80-7 7647-14-5, Sodium chloride,

reactions 7681-57-4 7757-82-6, Sodium sulfate, reactions

7757-83-7, Sodium sulfite 7783-20-2, Ammonium sulfate

[(NH₄)₂SO₄], reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(effect of salts on soy storage proteins defatted with supercrit. CO₂ and alcs.)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:867845 HCAPLUS

DOCUMENT NUMBER: 123:255238

TITLE: Method for isolating of whey proteins.

INVENTOR(S): Savolainen, Jouko

PATENT ASSIGNEE(S): Finland

SOURCE: PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9522907	A1	19950831	WO 1995-FI91	19950222
W: AU, JP, NZ, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FI 9400846	A	19950824	FI 1994-846	19940223
FI 96266	B	19960229		
FI 96266	C	19960610		
FI 9404110	A	19950824	FI 1994-4110	19940907
AU 9517100	A1	19950911	AU 1995-17100	19950222
AU 681250	B2	19970821		
JP 09509320	T2	19970922	JP 1995-522158	19950222
EP 796047	A2	19970924	EP 1995-908975	19950222
EP 796047	B1	20011010		
R: CH, DE, DK, ES, FR, GB, IE, IT, LI, NL, SE				
ES 2165415	T3	20020316	ES 1995-908975	19950222
US 5834042	A	19981110	US 1996-619666	19961114

PRIORITY APPLN. INFO.:

FI 1994-846 A 19940223

WO 1995-FI91 W 19950222

AB Whey or whey conc., a reagent which forms sulfite ions, and an oxidative compd. are contacted in order to sulfitolyze and oxidize the whey protein. The protein is then pptd. at an acid pH, and the pptd. sulfitolyzed and oxidized whey protein is recovered from the product

mixt., and an after-treatment is possibly performed on it. When a food-grade oxidant is used at 25-55 .degree., the oxidative compd. can react directly with the sulfitolyzed whey protein, and thus the disadvantages assocd. with the use of a catalyst are eliminated. The food-grade oxidant is CaO₂, KBrO₃, etc.

IC ICM A23J001-20
ICS A23J003-08; A23C021-00
CC 17-8 (Food and Feed Chemistry)
ST **whey protein isolation**
IT **Whey**
(isolation of whey proteins)
IT Peroxides, biological studies
Proteins, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(isolation of whey proteins)
IT 1305-79-9, Calcium peroxide 7631-90-5, Sodium hydrogen sulfite
7681-57-4, Sodium metabisulfite 7757-83-7, Sodium
sulfite 7758-01-2, Potassium bromate 14265-45-3,
Sulfite
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(isolation of whey proteins)

L18 ANSWER 4 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:162795 HCAPLUS
DOCUMENT NUMBER: 114:162795
TITLE: Extraction of proteins from soybeans as food additives
INVENTOR(S): Nakamura, Takao; Baba, Keiko; Tsuchiya, Toshiharu;
Hisa, Yuji; Enomoto, Mitsuru
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan; Asahi Yushi Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02261346	A2	19901024	JP 1989-81849	19890331

PRIORITY APPLN. INFO.: JP 1989-81849 19890331

AB A sol. protein with favorable color and flavor is prepd. by heating soybeans, inactivating lipooxygenase, eliminating fats, and extg. the beans with water, **pptg.** with acid, neutralizing, and drying. A reducing agent (0.001% by wt.) is used in water extn., and a surfactant is added prior to the drying process. The protein is used as food additive. Thus, soybeans were defatted, heated to inactivate lipooxygenase, homogenized, treated with Na₂SO₃ to ext. proteins, centrifuged to eliminate soybean lees, and treated with HCl to give a protein **ppt**. The **ppt.** was later treated with lecithin and dried.

IC ICM A23J003-16
CC 17-6 (Food and Feed Chemistry)
IT Surfactants
Lecithins
RL: **PREP (Preparation)**
(protein extn. from soybean with, in food additive
prepn.)
IT 9029-60-1
RL: **PROC (Process)**
(inactivation of, in soybean in **prepn.** of
proteins)

IT 7757-83-7, Sodium **sulfite**
 RL: BIOL (Biological study)
 (protein extn. from **soybean** with, in food additive
 prepn.)

L18 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:404952 HCAPLUS
 DOCUMENT NUMBER: 113:4952
 TITLE: Reduction of lipoxygenase activity during food
 processing using an oxygen-free environment
 INVENTOR(S): Gupta, Rajendra P.; Gupta, Rashmi R.
 PATENT ASSIGNEE(S): Prosoya Corp., USA
 SOURCE: U.S., 5 pp. Cont. of U.S. Ser. No. 141,114, abandoned.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4915972	A	19900410	US 1989-330219	19890329
PRIORITY APPLN. INFO.:			US 1986-856374	19860428
			US 1988-141114	19880105

AB Processing of seed for the prepn. of oil or protein foods under conds. of minimal oxygen content and at controlled temp. prevents the development of off-flavors as a result of lipoxygenase action. Temps. that inhibit the seed lipoxygenases without causing pptn. of the seed proteins are used. Soybeans 75 g were soaked in water for 10 h, washed and placed in a blender with H₂O 500 mL. The contents of the blender were degassed under vacuum and then blended to produce a soybean milk. After blending, blender chamber was placed in a boiling water bath for 20 min to denature lipoxygenase and soybean trypsin inhibitor, and the milk then filtered. The resulting filtrate had no off-flavor or bad taste. Addn. of NaHCO₃ 0.1% did not affect the flavor of the milk but gave it slightly more color.

IC ICM A23L001-20

NCL 426598000

CC 17-4 (Food and Feed Chemistry)

IT 144-55-8, Carbonic acid monosodium salt, biological studies

7757-83-7, Sodium **sulfite**

RL: BIOL (Biological study)

(aq. solns. of, extn. of seeds in prepn. of edible oils using, prevention of lipid oxidn. by processing in oxygen-free environments in relation to)

IT 9078-38-0, **Soybean** trypsin inhibitor

RL: BIOL (Biological study)

(thermal inactivation of, prepn. of edible oil and protein from **soybean** using, food processing in oxygen-free environment in relation to)

L18 ANSWER 6 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1990:54073 HCAPLUS
 DOCUMENT NUMBER: 112:54073
 TITLE: Improved method for preparation and
 modification of **soybean**
proteins

INVENTOR(S): Mieth, Gerhard; Pohl, Joachim; Marzilger, Karin;
 Wende, Frank Detlef; Eversmann, Christoph; Caspers,
 Gerald

PATENT ASSIGNEE(S): Akademie der Wissenschaften der DDR, Ger. Dem. Rep.
 SOURCE: Ger. (East), 6 pp.
 CODEN: GEXXA8
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 265789	A1	19890315	DD 1987-308922	19871111

PRIORITY APPLN. INFO.: DD 1987-308922 19871111

AB Protein preps. with improved sensory qualities and phys. properties (e.g. soly.) which can be used in foods are prepd. from soybean meal. The meal is incubated in an aq. alkali, or aq. alc. alkali soln., optionally in the presence of a reducing agent. A protein conc. is prepd. by an isoelec. acid extn. Alternatively, a protein isolate is prepd. by a nonisoelec. acid to alk. extn. followed by pptn. Thus, defatted soybean meal was incubated 60 min at pH 9.0 and 70.degree. with 50% alc. NaOH contg. 5% Na phosphate. The resulting suspension was dild. to a solid:liq. ratio of 1:8 (from 1:4) with water and incubated at 30.degree. for 30 min at pH 4.0. The ppt. was washed with water, neutralized with NaOH, and freeze-dried. The product had a sol. N index of 69%, a trypsin inhibitor activity of 1 mg/g, and improved water and fat binding ability and emulsifying activity.

IC ICM A23J001-14

CC 17-6 (Food and Feed Chemistry)

ST protein prepn soybean meal

IT Polyphosphates

RL: PREP (Preparation)
 (in protein prepn. from soybean meal,
 sensory and phys. qualities of protein prepn. in
 relation to)

IT Anhydrides

RL: PREP (Preparation)
 (of mono- or dicarboxylic acids, in protein prepn.
 from soybean meal)

IT Proteins; biological studies

RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and modification of, from soybean
 meal, improved sensory and phys. properties of)

IT Food

(protein preps. for, manuf. from soybean
 meal of)

IT Soybean

(protein preps. manufd. from, improved sensory and
 phys. properties of)

IT Alkali metals, compounds

Alkaline earth compounds

RL: BIOL (Biological study)
 (salts, in protein prepn. from soybean
 meal, sensory and phys. qualities of protein prepn.
 in relation to)

IT 89-65-6, Isoascorbic acid 108-24-7, Acetic anhydride 497-19-8,
 Carbonic acid disodium salt, biological studies 1305-78-8, Calcium oxide
 (CaO), biological studies 1310-73-2, Sodium hydroxide (Na(OH)),
 biological studies 7632-05-5, Sodium phosphate 7757-83-7
 9000-69-5, Pectin 9005-32-7, Alginic acid 10043-52-4, Calcium chloride
 (CaCl2), biological studies 11138-66-2, Xanthan 50936-53-3
 69772-87-8, Thermitase

RL: BIOL (Biological study)
 (in **protein prepn.** from **soybean meal**,
 sensory and phys. qualities of **protein prepn.** in
 relation to)

L18 ANSWER 7 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1985:452868 HCAPLUS

DOCUMENT NUMBER: 103:52868

TITLE: **Modification of whey
 protein concentrate to stimulate whippability
 and gelation of egg white**

AUTHOR(S): To, B.; Helbig, N. B.; Nakai, S.; Ma, C. Y.

CORPORATE SOURCE: Dep. Food Sci., Univ. British Columbia, Vancouver, BC,
 V6T 2A2, Can.

SOURCE: Canadian Institute of Food Science and Technology
 Journal (1985), 18(2), 150-7
 CODEN: CFSTB3; ISSN: 0315-5463

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Mapping simplex optimization was applied to find the conditions for
 modifying whey protein conc. (WPC) for max. whipping overrun (OR) and gel
 strength (GS) values. The largest OR value obtained from WPC was 183% (pH
 2.0; 10% WPC, cysteine [52-90-4], 1.0% of protein; pepsin [9001-75-6],
 2.5% of protein; 35.degree. incubation for 52 min, then 41.degree. heating
 for 5 min), compared to 67-83% for raw egg white and 176% for spray-dried
 egg white. The highest GS value obtained from WPC of 1.6 Newton (N) was
 10.6 N (pH 6.7; 1% WPC; Na hexametaphosphate, 74% of protein); 56.degree.
 for 2 min, then **pptd.** and washed at pH 3.8 and 20.degree.)
 compared to 2.3 N and 4.2 N for raw and spray-dried egg whites, resp.
 Maximization of a combined parameter of OR and GS was carried out by
 applying mapping simplex optimization of pepsin treatments with up to 0.9%
 cysteine to the hexametaphosphate treated WPC with the highest GS, the OR
 + GS values being 117% + 3.4 N. When 25 parts and 75 parts of 10% treated
 WPC with OR of 147% or 183%, and GS of 10.6 N, resp., were mixed, the
 resulting mixt gave a OR + GS value of (94-108%) + (3.6-4.2 N).

CC 17-8 (Food and Feed Chemistry)

IT 7757-83-7

RL: BIOL (Biological study)

(whey protein-gel strength response to alkali and heat and)

L18 ANSWER 8 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1984:173444 HCAPLUS

DOCUMENT NUMBER: 100:173444

TITLE: Soy isolate suitable for use in imitation cheese

INVENTOR(S): Lehnhardt, William F.; Streaty, Charles E., Jr.;
 Yackel, Walter C., Jr.; Yang, Ho S.; Tang, Daniel K.

PATENT ASSIGNEE(S): Staley, A. E., Mfg. Co., USA

SOURCE: U.S., 11 pp. Division of U.S. 4,349,576.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4435438	A	19840306	US 1982-388864	19820616
PRIORITY APPLN. INFO.:			US 1980-388864	19801229

AB Water-sol. protein is extd. from soybean in the presence of SO₃²⁻ and
pptd. by acid. When heated, the protein forms large mol. wt.

aggregates which simulate the hydrocolloidal attributes of caseinate and can be used in imitation cheese manuf. Thus, 1200 parts defatted soybean flakes in 17,500 parts water was treated with 0.6 part Na₂S₂O₅ and 6.75 parts 50% NaOH to bring the pH to 7.1. The slurry was agitated for 75 min. then 400 parts filter aid was added and the slurry was filtered. The clear filtrate was adjusted to pH 4.5 with HCl and the **pptd.** curd was sepd. and washed with dil. HCl. The curd was dissolved in dil. NaOH at pH 7.1 and heated at 71.degree. for 20-30 s. The coagulated protein was spray-dried. The dried product, had a N soly. index of 100 and when made up into an aq. 15% soln. had a viscosity of 340 cps.

IC A23J001-14; A23C020-00

NCL 426656000

CC 17-6 (Food and Feed Chemistry)

IT Cheese
(imitation, **soybean protein isolate** for
manuf. of)

IT **Proteins**

RL: PROC (Process)

(of **soybean**, manuf. of, for imitation cheese manuf.)

IT **Soybean**

(**protein isolate** from, manuf. of, for imitation
cheese manuf.)

IT 7681-57-4 14265-45-3

RL: BIOL (Biological study)

(in **soybean protein isolate** manuf., for
imitation cheese)

L18 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1983:217495 HCAPLUS

DOCUMENT NUMBER: 98:217495

TITLE: Modified proteinic materials for coating of paper and
the like

INVENTOR(S): El-Dash, Ahmed A.

PATENT ASSIGNEE(S): Brazil

SOURCE: Braz. Pedido PI, 8 pp.

CODEN: BPXXDX

DOCUMENT TYPE: Patent

LANGUAGE: Portuguese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	BR 8103197	A	19821228	BR 1981-3197	19810522
PRIORITY APPLN. INFO.:				BR 1981-3197	19810522
AB	Soybeans, peanuts, lupine, and/or similar legumes are pulverized, mixed 1:10-20 with water, mixed with inorg. sulfates 0.1-4, inorg. sulfites 0.01-3, and/or cysteine [52-90-4] 0.01-3%, heated to 40-70.degree. at pH 6.7-11 for 10 min to 2 h, filtered, acidified with H ₂ SO ₄ , HCl, or SO ₂ to pH 4.2-4.5 to ppt. modified protein, and filtered or centrifuged to remove the liq. and give a polymeric material suitable for coating paper.				
IC	C08H001-00; D21H001-34				
CC	43-7 (Cellulose, Lignin, Paper, and Other Wood Products)				
	Section cross-reference(s): 42				
ST	protein modified paper coating; soybean modification paper coating; peanut modification paper coating; lupine modification paper coating				
IT	Lupine Peanut				

Soybean

(modification of proteins from, in manuf. of paper coatings)

IT 52-90-4P, preparation 7487-88-9P, preparation 7757-83-7
 7757-88-2 7758-98-7, preparation 10043-01-3 10257-55-3 35788-00-2
 51379-94-3

RL: PREP (Preparation)

(legume protein treatment with, in manuf. of paper coatings)

L18 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:580616 HCAPLUS

DOCUMENT NUMBER: 97:180616

TITLE: Preservation of fruits and vegetables

INVENTOR(S): Garbutt, John T.

PATENT ASSIGNEE(S): Grain Processing Corp., USA

SOURCE: U.S., 7 pp. Cont.-in-part of U.S. Ser. No. 195,525, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4344971	A	19820817	US 1981-249727	19810331
PRIORITY APPLN. INFO.:			US 1980-195525	19801009

AB Fruit and vegetables are preserved by treatment with a protein ppt. obtained by contacting a protein-contg. soln., such as corn steep liquor, with an anionic surfactant. Thus, green bananas were dipped in aq. solns. (pH 7.9) of protein ppt., resulting from the treatment of corn steep liquor with Na lauryl sulfate [151-21-3], and held for 5 days at room temp. As compared to untreated controls, bananas treated with the protein ppt. developed color at a slower rate and lost less wt. during the period.

IC A23L001-212

NCL 426102000

CC 17-10 (Food and Feed Chemistry)

IT Fatty acids, esters

RL: BIOL (Biological study)

(esters, sulfonated, proteins pptn. by, from aq. waste solns., for fruit and vegetable preservation)

IT Banana
 Capsicum annuum annuum
 Fruit
 Grape
 Pear
 Pineapple
 Tomato
 Vegetable

(preservation of, by coating with protein ppt. from waste solns.)

IT Corn
 (protein ppt. from steep liquor of, fruit and vegetables preservation by treatment with)

IT Soybean

Whey

(protein ppt. from, fruit and vegetables preservation by treatment with)

IT 142-87-0 151-21-3, biological studies 1191-50-0 5910-79-2

51810-39-0.

RL: BIOL (Biological study)

(proteins pptn. by, from aq. waste solns., for fruit and vegetable preservation)

L18 ANSWER 11 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1979:17198 HCAPLUS

DOCUMENT NUMBER: 90:17198

TITLE: Effect of sulfur dioxide on the main biochemical processes of soybeans and peas

AUTHOR(S): Sardi, K.

CORPORATE SOURCE: Univ. Agric., Keszthely, Hung.

SOURCE: Proceedings of the Hungarian Annual Meeting for Biochemistry (1978), 18, 61-2

CODEN: PHABDI; ISSN: 0134-0689

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Soybeans exposed to SO₂ during the vegetative period showed decreased chlorophyll levels in the leaves with the decrease varying proportionally with increasing SO₂ levels. The greatest effect occurred in middle-aged leaves. Transpiration increased and respiration intensity and catalase [9001-05-2] decrease during SO₂ exposure. At 0.15 mg SO₂/m³ protein levels in leaves increased approx. 16% while at higher or fluctuating SO₂ levels protein formation was inhibited.

CC 4-3 (Toxicology)

IT Proteins

RL: FORM (Formation, nonpreparative)
(formation of, by soybeans, sulfur dioxide effect on)

L18 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1973:33670 HCAPLUS

DOCUMENT NUMBER: 78:33670

TITLE: Extracting organic materials from aqueous solutions

INVENTOR(S): Wennerblom, Bengt Axel; Joergensen, Sven Erik

PATENT ASSIGNEE(S): Svenska Cellulosa Aktiebolag

SOURCE: Ger. Offen., 31 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2159863	A	19720615	DE 1971-2159863	19711203
SE 356735	B	19730604	SE 1970-16275	19701202
US 3862901	A	19750128	US 1971-200159	19711118
AU 7136222	A1	19730531	AU 1971-36222	19711126
FI 55770	C	19791010	FI 1971-3404	19711129
FI 55770	B	19790629		
IT 945209	A	19730510	IT 1971-54437	19711130
ES 397511	A1	19740616	ES 1971-397511	19711130
GB 1369488	A	19741009	GB 1971-55515	19711130
NO 129900	B	19740610	NO 1971-4420	19711201
CA 960383	A1	19741231	CA 1971-129042	19711201
BE 776159	A1	19720404	BE 1971-111195	19711202
NL 7116562	A	19720606	NL 1971-16562	19711202
FR 2144187	A5	19730209	FR 1971-43232	19711202
HU 165132	P	19740628	HU 1971-SE1597	19711202

CH 555787	A	19741115	CH 1971-17553	19711202
AT 324961	B	19750925	AT 1971-10396	19711202
JP 52021000	B4	19770607	JP 1971-96799	19711202
PRIORITY APPLN. INFO.:		SE 1970-16275		19701202

AB Aq. solns. of high-mol.-wt. compds. contg. basic groups, e.g. proteins, polypeptides, bacteria, etc., are brought into contact with sulfonated lignocellulose material with an ion exchange capacity of at least 0.15 mequiv/g and the soln. is sepd. from the sulfonated lignocellulose. The protein-contg. waste water is treated with a **pptg.** material and the filtered soln. chromatographed on sulfonated lignocellulose. The column is eluted and the protein-enriched eluate is passed over a bisulfite satd. anionic exchange resin to yield purified water.

IC B01D; C02C

CC 60-1 (Sewage and Wastes)

ST org material extn waste water; **protein** removal waste water; lignocellulose **sulfonate** ion exchanger

IT **Whey**
(**protein**-contg. substances removal from, **sulfonated** lignocellulose in)

IT Waste water treatment
(**protein**-contg. substances removal, **sulfonated** lignocellulose in)

IT Milk
(skim, **protein**-contg. substances removal from, **sulfonated** lignocellulose in)

IT Lignocellulose, **sulfonated**
RL: PROC (Process)
(**protein**-contg. substances removal by, from waste water)

=> fil wpids

FILE 'WPIDS' ENTERED AT 13:48:48 ON 09 JAN 2003.
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FILE LAST UPDATED: 1 JAN 2003 <20030101/UP>
MOST RECENT DERWENT UPDATE: 200301 <200301/DW>
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http://www.derwent.com/userguides/dwpi_guide.html <<<

>>> DUE TO TECHNICAL ISSUES THE UPDATE 200301 HAD INITIALLY BEEN
INCOMPLETELY LOADED FOR CHEMICAL AND POLYMER CODING DATA.
THIS HAS BEEN CORRECTED AND THE SDI WILL BE RERUN.
POSSIBLE DUPLICATE SHIPPINGS OF SDIS WILL NOT BE
CHARGED FOR. WE APOLOGIZE FOR ANY INCONVENIENCE CAUSED <<<

=> d his

(FILE 'HCAPLUS' ENTERED AT 13:40:53 ON 09 JAN 2003)
DEL HIS Y

FILE 'WPIDS' ENTERED AT 13:43:11 ON 09 JAN 2003

L1 14406 S SULFITE? OR SULPHITE#
L2 5347 S PROTEIN# (5A) (SOY? OR WHEY?)
L3 2125 S L2 (S) (ISOLAT? OR PREP# OR PREPAR? OR MODIF?)

L4 9 S L3 AND L1
L5 38597 S SULFONAT? OR SULPHONAT?
L6 13 S L3 AND L5
L7 91424 S PPT# OR PRECIPITA?
L8 178 S L7 AND L3
L9 15 S L8 AND (SULF? OR SULPH?)
L10 30 S L4 OR L6 OR L9

=> d que 110

L1 14406 SEA FILE=WPIDS ABB=ON PLU=ON SULFITE? OR SULPHITE#
L2 5347 SEA FILE=WPIDS ABB=ON PLU=ON PROTEIN# (5A) (SOY? OR WHEY?)
L3 2125 SEA FILE=WPIDS ABB=ON PLU=ON L2 (S) (ISOLAT? OR PREP# OR
PREPAR? OR MODIF?)
L4 9 SEA FILE=WPIDS ABB=ON PLU=ON L3 AND L1
L5 38597 SEA FILE=WPIDS ABB=ON PLU=ON SULFONAT? OR SULPHONAT?
L6 13 SEA FILE=WPIDS ABB=ON PLU=ON L3 AND L5
L7 91424 SEA FILE=WPIDS ABB=ON PLU=ON PPT# OR PRECIPITA?
L8 178 SEA FILE=WPIDS ABB=ON PLU=ON L7 AND L3

L9 15 SEA FILE=WPIDS ABB=ON PLU=ON L8 AND (SULF? OR SULPH?)
 L10 30 SEA FILE=WPIDS ABB=ON PLU=ON L4 OR L6 OR L9

=> d .wp 1-30

L10 ANSWER 1 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2002-575339 [61] WPIDS

DNC C2002-162987

TI Soy milk juice beverage comprises soy milk, juice, gum-based stabilizer and composition comprising amino acid, (in)organic acid and metal ion.

DC D13

IN CARLOTTI, R J; DULEBOHN, J I

PA (MICH-N) MICHIGAN BIOTECHNOLOGY INST

CYC 95

PI WO 2002049459 A1 20020627 (200261)* EN 20p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TR TZ UG ZM ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
 SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2002029101 A 20020701 (200264)

ADT WO 2002049459 A1 WO 2001-US49055 20011217; AU 2002029101 A AU 2002-29101
 20011217

FDT AU 2002029101 A Based on WO 200249459

PRAI US 2000-256996P 20001220

AB WO 200249459 A UPAB: 20021031

NOVELTY - A soy milk juice beverage (pH 3-7) comprises:

- (1) soy milk, a juice;
- (2) a gum-based stabilizer; and
- (3) a composition comprising:
 - (i) an amino acid;
 - (ii) an organic acid or inorganic acid; and
 - (iii) a metal ion.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for preparing a soy milk product comprising:

- (1) adding a juice;
- (2) a gum-based stabilizer; and
- (3) a composition comprising:
 - (i) an amino acid;
 - (ii) an organic acid or inorganic acid; and
 - (iii) a metal ion to soy milk to form a soy milk product.

USE - As a soy milk juice beverage (claimed).

ADVANTAGE - The beverage is stable for at least two weeks, preferably over 3 months at room temperature and/or refrigerator temperature 4 deg. C. It is easier to process and provides superior uniformity of flavors, clean taste, appearance, and excellent nutritional attributes. It also exhibits separation, sediments or precipitate.

Dwg.0/0

TECH UPTX: 20020924

TECHNOLOGY FOCUS - FOOD - Preferred Properties: The soy milk juice beverage does not separate phase or precipitate when stored at 22degreesC or in a refrigerator at 4degreesC for 2 weeks, or 3 months. The mixture has a pH of 3-4.6.

Preferred Composition: The soy milk juice beverage comprises (wt.%):

- (1) soy milk (5-80, preferably 35-45);
- (2) juice (5-80, preferably 35-45);
- (3) gum-based stabilizer (0.01-3); and
- (4) a composition comprising an amino acid, an organic acid or inorganic

acid and a metal ion (0.001-3).

The beverage further comprises (wt.%):

- (1) a sweetener (25);
- (2) a high intensity sweetener;
- (3) an acidulent;
- (4) a food additive;
- (5) a **soy protein isolate**; and
- (6) an alcohol.

Preferred Materials: The juice is a fruit juice from apple, orange, pineapple, cherry, grape, grapefruit, lemon, melon, strawberry, black cherry, lemon-lime, mango, papaya, cranapple, fruit punch, peach, guava, tangerine, apricot, and/or cranberry. The juice is preferably a vegetable juice obtained from carrot juice, celery juice, cabbage juice, tomato juice, and/or mixed vegetable juice.

The gum-based stabilizer is pectin, alginate, carboxymethyl cellulose, locust bean gum, xanthan gum, gellan gum, guar gum, carrageenan, gum ghatti, karaya gum, tragacanth, gum arabic, and/or gelatin.

The composition comprising amino acid, (in)organic acid and metal ion is a solution (pH 3.5-3.8) comprising water, lysine HOH, magnesium oxide, malic acid, and citric acid.

The molar ratio of lysine HOH:magnesium oxide:acids is 1.5:1.0:2.9.

The sweetener is high fructose corn syrup, corn syrup, glucose, fructose, honey, lactose, and/or sugar.

The high intensity sweetener is acesulfame K, sucralose, aspartame and/or alitame.

The acidulent is citric acid, malic acid, succinic acid, lactic acid, tartaric acid, gluconic acid, ascorbic acid and/or other food grade organic acids.

The food additive is caffeine, vitamins (pyridoxine, riboflavin, vitamin D, niacin, phyloquinone), minerals (calcium, magnesium, iron, cobalt, zinc, manganese, chromium(III), copper, molybdenum, phosphorus, selenium), folic acid, ginkgo, garlic, isoflavones, **soy proteins**, L-carnitine, licorice, beta-carotene, peppermint, polyphenol, herbal extracts, and/or botanicals.

Preferred Method: The method further comprises:

- (1) heating the soy milk product by microwave, conventional heating, induction, solar convection, or direct electrical resistance methods for sterilization, ultra high temperature processing, or pasteurization; and
- (2) packaging the soy milk product in a chemically clean or sterile container.

The soy milk product is stirred, blended, homogenized or otherwise mixed. The juice is **prepared** from a fruit product, such as, jams or jellies. The soy milk product is carbonated. An alcohol and a sweetener are further added to the soy milk.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The acidulent is hydrochloric acid, **sulfuric acid**, phosphoric acid, and/or nitric acid.

L10 ANSWER 2 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2002-557565 [59] WPIDS

DNC C2002-158249

TI New fungicide and bactericide composition useful e.g. for crop protection before and after harvest comprises sodium or potassium polyphosphate, bicarbonates, carbonates, orthophosphate, pyrophosphate, phosphonate or other adjuvants.

DC C03

IN FORMIGONI, A

PA (SIPC) SIPCAM SOC ITAL PROD CHIM AGRI

CYC 99

PI WO 2002045512 A2 20020613 (200259)* EN 31p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TR TZ UG ZM ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT
 RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZM ZW
 AU 2002018438 A 20020618 (200262)

ADT WO 2002045512 A2 WO 2001-IB2325 20011204; AU 2002018438 A AU 2002-18438
 20011204

FDT AU 2002018438 A Based on WO 200245512

PRAI IT 2001-MI2175 20011018; IT 2000-MI2627 20001205

AB WO 200245512 A UPAB: 20020916

NOVELTY - A new fungicide and bactericide composition for crop protection before and after harvest comprises sodium or potassium polyphosphate, sodium or potassium bicarbonate, carbonate, orthophosphate, pyrophosphate or phosphonate and other adjuvants

DETAILED DESCRIPTION - (A) A novel solid, powdered or granular, water-soluble or water-dispersible, fungicide and bactericide composition, ready for use, for crop protection before and after the harvest, comprises a synergistically effective and quantitatively variable combination of the following compounds:

- (1) one or more potassium and/or sodium polyphosphates of formula (I);
- (2) one or more compounds selected from sodium or potassium salts of bicarbonates, carbonates, orthophosphates, pyrophosphates, or phosphonates; and
- (3) optionally, with the addition of one or more compounds selected from surfactants and adhesives, other adjuvants and inert fillers.

X = H, K, Na;
 Y = K, Na; and
 n = at least 16 and is the average number of the polymeric metaphosphates of the different polyphosphates, having the formula $-(KPO_3)_n-$ or $-(NaPO_3)_n-$

ACTIVITY - Fungicide; Bactericide; Antibacterial.

MECHANISM OF ACTION - None given.

USE - The compositions can be used for crop protection against fungicide and bacterial diseases before and after the harvest, in open fields or in greenhouses (claimed). They can be used to avoid losses of agricultural products, caused by cryptogamic diseases and phytopathogenic bacteria. They can be used to control diseases such as Erysiphaceae (e.g. of the genera Oidium, Uncinula, Sphaerotheca, Erysiphe, Podosphaera, Levellula), the Helotiaceae (e.g. of the genera Botrytis, Monilia, Sclerotinia), the Peronosporaceae (e.g. of the genera Plasmopara, Phytophthora, Bremia, Peronospora, Pseudoperonospora), and other families (e.g. of the genera Venturia, Puccinia, Coryneum, Ascochyta, Septoria, Piricularia, Alternaria, Stemphylium, Cercospora). The cryptogamic diseases which can be controlled after the harvest on agricultural products preserved in warehouses or in refrigerators, belong e.g. to the genera Penicillium, Botrytis, Rhizopus, Gloeosporium, Mucor, Monilia, Alternaria, Geothricum, Phytophthora, Fusarium, and others, and they concern fruits (e.g. pome, stone and citrus fruits, grapes, bananas, kiwi, strawberries), vegetables (e.g. cucuritaceous, solanaceous and cruciferous plants, salads, onions, potatoes), or cereals and fodder crops. The compositions also allow control of different bacterial diseases, e.g. Erwinia amylovora and Nectria galligena on pome fruits, bacteriosis on different vegetables and crops, caused by Erwinia species, Xanthomonas species, Corynebacterium species, and Pseudomonas species. In a greenhouse with air conditioning, at temperatures between 20 deg. C and 28 deg. C and with a 60-80% relative humidity, some cucumber seedlings of the Marketer

variety are cultivated in plastic pots of 10 cm., until the first two true leaves are formed. Eight pots - each containing one cucumber seedling - covering an overall surface of 1 square meter and positioned over a rotating disk, are sprayed with two nozzles spreading 50 ml of aqueous dispersion (equivalent to 500 liters per hectare) with some fungicide compositions. Separately, 8 pots for comparison tests are sprayed only with water, without being treated with fungicides. Two days after the treatments, all the seedlings are infected with young spores of the cucurbitaceous powdery mildew *Erysiphe cichoracearum*, derived from infected cucumber plants and blown in a uniform manner over all the cucumber seedlings. The cucumber seedlings thus treated are stored in a greenhouse at 20-28 deg. C and with a 60-80% relative humidity. After 10 days one checks the results, reckoning the effects of the treatments according to the % of reduced infection in the treated plants as compared with the infection existing in the untreated plants, sprayed only with water. The results showed that the activity of the compositions is stronger than the sum of the activities of the single components, thus evidencing an unexpected phenomenon of synergy in the mixtures containing potassium polyphosphate (n1000) with sodium bicarbonate, and potassium polyphosphate with disodium orthophosphate, in the presence of a reduced dosage of bicarbonate, or containing tetrasodium pyrophosphate, in the presence of a low dosage of bicarbonate.

ADVANTAGE - The compositions are compatible with the environment in that they are not dangerous for the animal and vegetal organisms, as well as being totally biodegradable, while releasing compounds which are useful as fertilizers. The compositions are not toxic for man, so that they can be used on different crops also near the harvest or after the harvest.
Dwg.0/0

TECH

UPTX: 20020916

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Components: The polyphosphates may be phosphates with high polymerization, with n higher than 1000, having a P2O5 content of 53.5-61.5%, a content of potassium or sodium oxides of 46-38%, and a pH of 3-6 in a 1% aqueous solution, or they may be sodium polyphosphates with n 16-40, P2O5 content 67-77%, a content of Na2O of 31-20%, and a pH of 1.7-7.2 in an 1% aqueous solution. The weight ratio between the polyphosphates of formula (I) on one side, and the sodium or potassium salts of bicarbonates, carbonates, orthophosphates, pyrophosphates, phosphonates, on the other side is preferably 4:1 to 1:8. The polyphosphates may be in mixture with sodium bicarbonate, sodium carbonate, sodium carbonate in the presence of one or more of sodium or potassium orthophosphates, pyrophosphates, phosphonates or potassium bicarbonate, or sodium carbonate in the presence of one or more of sodium or potassium orthophosphates, pyrophosphates, phosphonates or potassium carbonate. The adjuvants may be anticaking and dispersants e.g. formed by colloidal precipitated or pyrogenic silica, by aluminosilicates, by various fine-powdered silicates as diatomite, kaolin, clays, bentonite or montmorillonite.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Components: The surfactants may be anionic (e.g. sodium or potassium salts of fatty acids, optionally polyalkoxylated, of mono- and di-glycerides or fatty acids and their phosphate, sulfate, acetic, citric, tartaric and lactic esters, of dialkyl-sulfosuccinates, of alkyl-, alkylaryl-, and tristyryl-phosphates or sulfates, optionally polyalkoxylated sucroglyceride and alkylglycoside esters, of ligninsulfonates, of alkyl-sarcosinates, of alkyl-taurates, of alkyl-isethionates, of polycarboxylates, of alkyl-, alkylaryl-, or aryl-sulfonates), non-ionic (e.g. alkyl-sorbitans, silicone surfactants, silicone glycols) or amphoteric (e.g. lecithins, alkylaminocarboxylates, betaine or imidazoline derivatives or polyglycols clathrates in urea adducts.) surfactants. The surfactants may be used at 0.1-20wt.%.

TECHNOLOGY FOCUS - POLYMERS - Preferred Components: The non-ionic surfactants may be e.g. sorbitans, optionally polyalkoxylated, alkyl-, alkylaryl- or tristyril- polyalkoxylated, or copolymers etho-propoxylated. The adhesive substances may be fine-powdered compounds, soluble or dispersible in water, derived from proteins of vegetable or animal origin, from polysaccharides, from lanoline derivatives, from natural or synthetic polymers, **soybean flour, soya proteins,** gluten of cereals, casein and derivatives, dextrans also **modified**, bacterial or vegetable gums, or synthetic water-soluble cellulose derivatives.

L10 ANSWER 3 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2002-099135 [14] WPIDS

DNC C2002-031059

TI Separation and recovery of isoflavones such as genistein from a plant material containing them involves the use of polar ion exchange resin.

DC B02 B03 D13 E13

IN BATES, G A; BRYAN, B A

PA (PROT-N) PROTEIN TECHNOLOGIES INT INC

CYC 30

PI EP 1166643 A1 20020102 (200214)* EN 12p

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

CA 2307061 A1 20011028 (200214)# EN

JP 2001302689 A 20011031 (200214)# 29p

CN 1321640 A 20011114 (200217)#

KR 2001103921 A 20011124 (200232)#

BR 2000002609 A 20020604 (200246)#

ADT EP 1166643 A1 EP 2000-305439 20000628; CA 2307061 A1 CA 2000-2307061
20000428; JP 2001302689 A JP 2000-157373 20000419; CN 1321640 A CN
2000-118053 20000430; KR 2001103921 A KR 2000-25206 20000512; BR
2000002609 A BR 2000-2609 20000609

PRAI EP 2000-305439 20000628; CA 2000-2307061 20000428; JP 2000-157373
20000419; CN 2000-118053 20000430; KR 2000-25206 20000512; BR
2000-2609 20000609

AB EP 1166643 A UPAB: 20020402

NOVELTY - Separating and recovering isoflavones and plant protein from a plant material containing them involves contacting a clarified plant protein extract containing isoflavones with a polar ion exchange resin (3); allowing the isoflavones to contact and bind with (3) such that the protein extract is depleted of isoflavones; separating and collecting isoflavone-depleted protein containing extract from (3); and separating and collecting isoflavones from (3).

USE - For separating and recovering isoflavones (preferably at least one of genistein, daidzein, glycitein, biochanin A, formononetin, or their natural glycosides and glycoside conjugates) and plant protein such as soy protein from a plant material such as soy flakes, soy flour, soy meal, soy grit, and/or soybeans (claimed).

ADVANTAGE - The method is effectively and economically performed on a commercial scale. Significant economic efficiencies can be achieved with the process since two desirable materials in a plant material can be separated and recovered simultaneously.

Dwg. 0/0

TECH UPTX: 20020301

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Method: The clarified **protein** extract (preferably **soy protein** extract) is **prepared** by extracting a plant material containing protein and isoflavones with an aqueous extractant having a pH above the isoelectric point of the protein (preferably pH 6 - 12) to solubilize the

protein and the isoflavones in the extractant; and then separating the liquid extractant containing the solubilised protein and isoflavones from insoluble plant matter. The method further involves the step of adjusting the pH of isoflavone-depleted protein containing extract to about the isoelectric point of the protein (preferably pH 4 - 5), to **precipitate** the protein. The **precipitated** protein is separated from a liquid portion of the extract, neutralized and dried. Prior to contacting the clarified protein extract with (3), the ion exchange resin is conditioned by exposing it to an agent to convert it to a hydroxide form; treating the hydroxide form resin with an agent to convert it into a chloride or **sulphate** form, followed by treatment with an agent, which converts at least some strong base sites of the chloride or **sulphate** form resin to a carbonate form. The isoflavones are separated and collected from (3) after the isoflavone-depleted protein containing extract is separated and collected from (3). The isoflavones are separated from (3) by washing the isoflavone from (3) with methanol, ethanol, propanol, isopropyl alcohol, isobutyl alcohol, butanol, ethyl acetate, acetonitrile, acetone, methylene chloride, chloroform and/or carbon tetrachloride. The method further involves treating the separated isoflavones at a temperature and a pH for a time to convert isoflavone glycoside conjugates to isoflavone glycosides and contacting the separated isoflavones with a beta-glucosidase enzyme at a temperature and pH to convert isoflavone glycosides to aglucone isoflavones. At least a majority (substantially all) of the protein in the clarified plant protein extract is separated and recovered from (3) in the isoflavone-depleted protein containing extract. At least a majority (substantially all) of the isoflavones in the clarified plant protein extract are separated and recovered from (3).

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Resin: (3) is an anion exchange resin (preferably a type II macroporous anion exchange resin selected from weak base and strong base anion exchange resin).

L10 ANSWER 4 OF 30 WPIDS (C) 2003 THOMSON DERWENT
 AN 2001-648362 [74] WPIDS
 DNC C2001-191295
 TI Fast dissolving orally consumable film for delivery of a pharmaceutical agent includes an ion exchange resin as a taste masking agent.
 DC A96 B05 B07
 IN AMBIKE, S H; BESS, W S; KULKARNI, N; RAMSAY, M P
 PA (WARN) WARNER LAMBERT CO
 CYC 84
 PI WO 2001070194 A1 20010927 (200174)* EN 41p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TR TZ UG ZW
 W: AE AG AL AU BA BB BG BR BZ CA CN CR CU CZ DM DZ EE GD GE HR HU ID
 IL IN IS JP KP KR LC LK LR LT LV MA MG MK MN MX MZ NO NZ PL RO SG
 SI SK SL TR TT UA UZ VN YU ZA
 AU 2001029720 A 20011003 (200210)
 NO 2002004513 A 20020920 (200301)
 ADT WO 2001070194 A1 WO 2001-US2192 20010123; AU 2001029720 A AU 2001-29720
 20010123; NO 2002004513 A WO 2001-US2192 20010123, NO 2002-4513 20020920
 FDT AU 2001029720 A Based on WO 200170194
 PRAI US 2000-535005 20000323
 AB WO 200170194 A UPAB: 20011217
 NOVELTY - A consumable film which adheres to and dissolves in the mouth is new.

DETAILED DESCRIPTION - A consumable film which adheres to and dissolves in the mouth comprises a water soluble polymer, an agent and a taste masking agent.

An INDEPENDENT CLAIM is included for a method for preparing the film.

USE - The film is useful for delivery of a pharmaceutical agent.

ADVANTAGE - The fast dissolving orally consumable film which adheres to the mouth contains an ion exchange resin as a taste masking agent.
Dwg.0/0

TECH

UPTX: 20011217

TECHNOLOGY FOCUS - PHARMACEUTICALS - Preferred Composition: The water soluble polymer is preferably pullulan, hydroxypropylmethyl cellulose, hydroxyethyl cellulose, hydroxypropyl cellulose, polyvinyl pyrrolidone, carboxymethyl cellulose, polyvinyl alcohol, sodium alginate, polyethylene glycol, tragacanth gum, guar gum, acacia gum, arabic gum, polyacrylic acid, methylmethacrylate copolymer, carboxyvinyl polymer, amylose, high amylose starch, hydroxypropylated high amylose starch, dextrin, pectin, chitin, chitosan, levan, elsinan, collagen, gelatin, zein, gluten, soy protein isolate, whey

protein isolate and/or casein. The active agent is preferably an antimicrobial agent (especially triclosan, cetyl pyridinium chloride, domiphen bromide, quaternary ammonium salts, zinc compounds, sanguinarine, fluorides, alexidine, octonidine and/or EDTA), non-steroidal antiinflammatory agent (especially aspirin, acetaminophen, ibuprofen, diflunisal, fenoprofen calcium, naproxen, tolmetin sodium and/or indomethacin), antitussive (especially benzonatate, caramiphen edisylate, dextromethorphan, chlorphedianol and/or diphenhydramine), decongestant (especially pseudoephedrine, phenylephrine and/or phenylpropanolamine), antihistamine (especially brompheniramine maleate, chlorpheniramine maleate, carbinoxamine maleate, clemastine fumarate, dexchlorpheniramine maleate, diphenylpyraline hydrochloride, doxylamine succinate, promethazine hydrochloride, pyrilamine maleate, tripeleminamine citrate and/or triprolidine hydrochloride), expectorant (especially guaifenesin ipecac, potassium iodide and/or terpin hydrate), anti-diarrheal (especially loperamide), H2 antagonist (especially famotidine and/or ranitidine), proton pump inhibitor (especially omeprazole and/or lansoprazole), central nervous system agent and/or analgesic. The taste masking agent is preferably an ion exchange resin (especially a sulfonated polymer comprising polystyrene cross-linked with divinylbenzene) which comprises irregular or spherical particles 45 to 150 micrometers in diameter or is magnesium trisilicate. The film preferably contains pullulan (40 to 80%), dextromethorphan (5 to 40%), sulfonated polymer ion exchange resin (5 to 40%), stabilizing agent (0.01 to 5%), coloring agent (0.001 to 0.1%), water (0.1 to 70%), sweetening agent (0.1 to 15%), flavoring agent (0.1 to 15%), cooling agent (0.1 to 4%), surfactant (0.1 to 5%), triglyceride (0.1 to 12%), preservative (0.001 to 5%), polyethylene oxide compound (0.1 to 5%) and propylene glycol (1 to 20%).

Preferred Method: At least one active agent and one taste masking agent are incorporated into the aqueous solution or into the uniform gel, and is sorbed to the ion exchange resin without separating ion exchanged active agent and counter ion salts.

Preparation: Preparing the consumable film comprises dissolving water-soluble ingredients in water to provide an aqueous solution; mixing at least one water soluble film former and at least one stabilizing agent to provide a film-forming mixture; combining the film forming mixture and aqueous solution to provide a hydrated polymer gel; mixing oils to form an oil mixture; adding the oil mixture to the hydrated polymer gel and mixing to provide a uniform gel on a substrate; and drying the cast gel to provide the film.

L10 ANSWER 5 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2001-282639 [30] WPIDS

DNC C2001-086306

TI Process for preparing dodecanoyl Konjak-glucomannoligose-sodium

sulfonate.

DC A97 D13
 IN GAN, X
 PA (GANX-I) GAN X
 CYC 1
 PI CN 1280989 A 20010124 (200130)*
 ADT CN 1280989 A CN 2000-115963 20000818
 PRAI CN 2000-115963 20000818
 AB CN 1280989 A UPAB: 20010603
 NOVELTY - A process for **preparing** dodecanoyl
 Konjak-glucomannoligose-sodium **sulfonate** uses refined Kanjak
 starch as raw material and includes such steps as enzymolyzing glucomannan
 to obtain oligose with molecular wt of over 8000, mixing with monoester
 sodium dodeca ether **sulfonate** succinate, regulating pH value to
 3.5-5.5 with hydrochloric acid, and dry-modifying at 50 deg. C
 for 3 hrs. to produce the product. The product can be used in separation
 of **soybean protein** or other functional food for raised
 functions and expanded range of effects.
 Dwg.0/0

L10 ANSWER 6 OF 30 WPIDS (C) 2003 THOMSON DERWENT
 AN 2001-138049 [14] WPIDS
 DNC C2001-040596
 TI Cleansing composition useful in personal care products particularly
 make-up remover comprises a liquid silicone, an ester and a water
 dispersible component.
 DC A96 D21 E19
 IN KAMINSKI, C; LUKENBACH, E R; PASCAL-SUISSE, S; RUGGIERO, M; TAHAR, M
 PA (JOHJ)-JOHNSON & JOHNSON CONSUMER CO INC; -(KAMI-I) KAMINSKI C; -(LUKE-I)
 LUKENBACH E R; (PASC-I) PASCAL-SUISSE S; (RUGG-I) RUGGIERO M; (TAHA-I)
 TAHAR M
 CYC 95
 PI WO 2001001949 A1 20010111 (200114)* EN 70p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TZ UG ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
 SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
 AU 2000057648 A 20010122 (200125)
 US 2002035046 A1 20020321 (200224)
 EP 1216685 A2 20020626 (200249)# EN
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI TR
 AU 2001097359 A 20020627 (200254)#
 CA 2365818 A1 20020621 (200254)# EN
 CN 1366874 A 20020904 (200281)#
 ADT WO 2001001949 A1 WO 2000-US17431 20000623; AU 2000057648 A AU 2000-57648
 20000623; US 2002035046 A1 Provisional US 1999-141927P 19990701, CIP of US
 2000-604563 20000627, US 2000-745270 20001221; EP 1216685 A2 EP
 2001-310796 20011221; AU 2001097359 A AU 2001-97359 20011221; CA 2365818
 A1 CA 2001-2365818 20011221; CN 1366874 A CN 2001-125342 20011221
 FDT AU 2000057648 A Based on WO 200101949
 PRAI US 1999-141927P 19990701; EP 2001-310796 20011221; AU 2001-97359
 20011221; CA 2001-2365818 20011221; CN 2001-125342 20011221
 AB WO 200101949 A UPAB: 20011220
 NOVELTY - A cleansing composition which is stable, economically-feasible
 and can effectively remove the residue from sebum as well as the residue
 from make-up and hair protecting agents, but also impart a non-oily feel.
 DETAILED DESCRIPTION - A cleansing (C1) comprises a liquid silicone

(a), a water dispersible component (b) and an ester (c).

INDEPENDENT CLAIMS are included for:

(A) a cleansing system (S1) comprising (C1), water, a polymeric emulsifier (d) and/or a thickener (e);

(B) treating hair loss, inhibiting hair growth, treating acne, reducing the signs of aging and other manifestations of photodamage, depigmenting the skin, treating the symptoms and/or the diseases of dandruff, seborrheic dermatitis and/or psoriasis involves topically applying a mixture of (S1) and a hair loss treatment agent (f), hair growth inhibiting agent (g), anti-acne agent (h), anti-aging agent (i), depigmentation benefit agent (j) or a benefit agent (k) respectively to the desired location of an animal or human;

(C) a foaming composition comprising (b), (c), water and a foaming surfactant (l);

(D) making an oil-in water emulsion which involves (i) combining a lipophilic phase with a hydrophilic phase; and (ii) neutralizing a hydrophilic thickening agent (m) in the hydrophilic phase with a neutralizer. The hydrophilic phase comprises a polymeric emulsifier;

(E) making a water-in oil emulsion which involves (ii) followed by (i); and

(F) depositing a benefit agent into and/or onto the skin, hair and/or nails involves applying a composition comprising: either an optional (a), (b), (c), (d) and/or (f), and a benefit agent (n); or (a), (b), (c), water, (l) and (n).

USE - In personal care products (particularly make-up remover) (claimed).

ADVANTAGE - The cleansing compositions not only impart superior cleansing properties, but also are relatively non-irritating and thus suitable for use by people having sensitive skin and eyes. The compositions effectively deliver and/or deposit different benefit agents into and onto the skin.

Dwg.0/5

TECH

UPTX: 20011220

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Cleansing Composition:

(C1) comprises (wt.%): (a) (10 - 35); (b) (10 - 35); and (c) (55 - 65).

Preferred Cleaning System: (S1) comprises (wt.%): (C1) (at least 5), water (from 70 - 98), (d) and/or (e) (from 0.5 - 1.5). (S1) additionally comprises (wt.%): cleaning enhancer (1 - 3), benefit agent (from 0.001 - 20) and foaming surfactant (5 - 15).

Preferred Components: (a) is hexamethylsiloxane, dimethicone, dimethiconol and/or cyclomethicone.

The cyclomethicone is cyclo tetradimethyl siloxane, cyclopentadimethyl siloxane, cyclohexadimethyl siloxane and/or cycloheptadimethyl siloxane.

(b) is polyethylene glycol 400, hexylene glycol, propylene glycol, polypropylene glycol-10 methylglucose ether, ethoxydiglycol, polyethylene glycol-6 caprylic/capric glyceride, ethylene glycol monobutyl ether, triisopropyl citrate, polyethylene glycol-8 caprylic/capric glyceride, 3-methoxy-3-methyl-1-butanol, dimethyl isosorbide and/or polyethylene-6 caprylic/capric triglyceride. (preferably hexylene glycol, dimethyl isosorbide and/or polyethylene glycol-6 caprylic/capric glyceride, especially hexylene glycol (5 - 15 wt.%) and polyethylene-6 caprylic/capric triglyceride (5 - 10 wt.%)).

(c) is a liquid ester that either possesses a structural means for ensuring the liquidity of the ester or is heterogeneous in nature, and is selected from 5-22C branched alkyl alcohol ester of an aromatic acid, 5-22C straight-chained or branched alkyl acid ester of optionally ethoxylated/propoxylated polyols having 3-7C, 5-22C branched alkyl alcohol ester of branched polyacid, 5-22C branched or straight-chained alkyl acid ester of branched and/or unsaturated 5-22C alkyl alcohol, 5-22C branched and unsaturated alkyl alcohol ester of an acid (selected from adipic,

succinic, sebacic and/or maleic acid), polyether interrupted fatty acid ester and/or benzoic acid ester of 8-22C heterogeneous alcohol (preferably a mixture containing (wt.%): isononyl isononanoate (15 - 50), isostearyl palmitate (15 - 50), cetyl octanoate (15 - 50) and pentaerythritol tetraoctanoate (15 - 50)).

The benefit agent is vasoconstrictor, collagen enhancer, anti-oedema agent, depigmentation agent, reflectant, detangling/wet combing agent, film forming polymer, humectant, amino acid and their derivatives, antimicrobial agent, allergy inhibitor, anti-acne agent, anti-aging agent, anti-wrinkling agent, antiseptic, analgesic, antitussive, antipruritic, local anesthetic, anti-hair loss agent, hair growth promoting agent, hair growth inhibitor agent, antihistamine, antiinfective, inflammation inhibitor, anti-emetic, anticholinergic, vasodilator, wound healing promoter, (poly)peptide, protein, deodorant, anti-perspirant, medicament agent, skin emollient, skin and hair moisturizer, skin firming agent, hair conditioner, hair softener, vitamin, tanning agent, skin lightening agent, antifungal, depilating agent, shaving **preparation**, external analgesic, perfumes, counterirritant, hemorrhoidal, insecticide, poison ivy product, poison oak product, burn product, anti-nappy rash agent, prickly heat agent, make-up **preparation**, herbal extract, retinoid, flavenoid, sensate, anti-oxidant, chelating agent, cell turnover enhancer, coloring agent, pigment and/or sunscreen (preferably feverfew, centella asiatica, olive leaf, wheat **protein**, oat oil, lycopene, DMAE, **soy** and their derivatives, colloidal oatmeal, **sulfonated** shale oil, elubiol, 6-(1-piperidinyl)-2,4-pyrimidinediamine-3-oxide, finasteride, ketoconazole, salicylic acid, zinc pyrithione, coal tar, benzoyl, peroxide, selenium sulfide, hydrocortisone, sulfur, menthol, pramoxine hydrochloride, triacetilammonium chloride, polyquaternium 10, panthenol, panthenol triacetate, vitamin A/B/D/E/K and their derivatives, keratin, lysine, arginine, hydrolyzed wheat/silk **protein**, octyl methoxycinnamate, oxybenzone, minoxidil, titanium dioxide, zinc dioxide, retinol, erthromycin, and/or tretinoin).

(f) is minoxidil, 6-(1-piperidinyl)-2,4-pyrimidinediamine-3-oxide, N'-cyano-N-(tert-pentyl)-N'-3-pyridinyl-guanidine, finasteride, retinoid and their derivative, ketoconazole and/or elubiol.

(g) is serine protease, retinol, isotretinoin, betamethoisone and/or alpha-tocophenol and their derivative.

(h) is benzoyl peroxide, retinol, elubiol, antibiotic and/or salicylic acid.

(i) is retinoid, anti-oxidant, alpha-hydroxy and/or beta-hydroxy acid.

(j) is retinol, kojic acid and/or hydroquinone.

(k) is shale oil and its derivative, elubiol, ketoconazole, coal tar, salicylic acid, zinc pyrithione, selenium sulfide, hydrocortisone, sulfur, menthol and/or pramoxine hydrochloride.

The hydrophilic phase comprises at least one of water, thickener, cleansing enhancer, nonfoaming surfactant or (b).

The lipophilic phase is of at least one silicone, ester or polymeric emulsifier.

Preferred Foaming Composition: The foaming surfactant has a column height of greater than about 20 mm determined by Miles-Ross test and is selected from non-ionic surfactant, cationic surfactant, amphoteric surfactant and/or anionic surfactant.

The foaming composition additionally contains a liquid silicone and at least one (d), (e), benefit agent or a non-ionic emulsifier.

TECHNOLOGY FOCUS - POLYMERS - Preferred Components: (b) is polyethylene glycol 400, hexylene glycol, propylene glycol, polypropylene glycol-10 methylglucose ether, ethoxydiglycol, polyethylene glycol-6 caprylic/capric glyceride, ethylene glycol monobutyl ether, triisopropyl citrate, polyethylene glycol-8 caprylic/capric glyceride, 3-methoxy-3-methyl-1-butanol, dimethyl isosorbide and/or polyethylene-6 caprylic/capric

triglyceride.

(d) is polyethylene glycol-30 dipolyhydroxystearate, dimethicone copolyol, and/or substituted acrylate.

(e) is carbomer, acrylate copolymer, hydroxyethylcellulose modified with cetyl ether and/or polyvinylmethyl ether/maleic anhydride (PVM/MA) decadiene crosspolymer (preferably acrylates/aminoacrylates copolymer, acrylates/steareth-20 methacrylate copolymer, acrylates/ceteth-20 itaconate copolymer, acrylates/steareth-20 itaconate copolymer, carbomer, modified hydroxyethylcellulose and/or (PVM/MA) decadiene crosspolymer).

(f) is cocamide MEA, lauryl glucoside, PEG-50 tallow amide and/or cocamidopropylamine oxide.

The cleaning enhancer is a nonfoaming surfactant and/or non-ionic emulsifier. The nonfoaming surfactant is sucrose cocoate and/or sucrose stearate.

The non-ionic emulsifier is isoceteth 20, oleth-2, mixture of PEG-40 hydrogenated castor oil and trideceth-9, Poloxamer 184, laureth-4, sorbitan trioleate, polyoxyethylene-(2)oleyl ether, sorbitan stearate, cetearyl glucoside and/or glyceryl oleate.

L10 ANSWER 7 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2000-442635 [38] WPIDS

DNC C2000-134719

TI A process for obtaining a gelling protein from defatted soybean useful in various foods, such as surimi, pressed ham, spreads and bakery products..

DC D13

IN ABDOLGADER, R; ALLI, I

PA (UYMC-N) UNIV MCGILL

CYC 90

PI WO 2000037485 A1 20000629 (200038)* EN 12p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL

OA PT SD SE SL SZ TZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES

FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS

LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL

TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2000017650 A 20000712 (200048)

ADT WO 2000037485 A1 WO 1999-CA1219 19991220; AU 2000017650 A AU 2000-17650 19991220

FDT AU 2000017650 A Based on WO 200037485

PRAI US 1998-113131P 19981221

AB WO 200037485 A UPAB: 20000811

NOVELTY - A process for obtaining a gelling protein from defatted soybean comprises:

(1) extracting proteins from ground defatted soybean with an alkaline solution; and

(2) **precipitating** the high gelling protein from the proteins of (1) by cryoprecipitation.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are made for the following:

(1) A process for producing a cold-set gel comprising the gelling protein of (2) comprises:

(i) making an aqueous dispersion of the gelling protein;

(ii) heating the dispersion to 60-90 deg. C;

(iii) adding a salt to the dispersion of (ii); and

(iv) allowing for the dispersion of (iii) to set.

(2) a gelling protein obtained by steps (1) and (2); and

(3) a gel comprising this gelling protein formed by steps (i) to

(iv).

USE - Cold-set gelation has potential applications in the food industry, in various foods, such as surimi, pressed ham, spreads and bakery products. The protein is useful as a substitute for cold set whey

proteins such as for non-dairy applications.

ADVANTAGE - The process provides a protein which has high functionality, in particular high gelling and solubility properties. The process is easy to use and maintain.

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic diagram of a process for isolating a gelling protein from defatted soybean.

Dwg.1/1

TECH

UPTX: 20000811

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Reagent: The salt is selected from calcium chloride/sulfate, sodium chloride and magnesium chloride/sulfate.

TECHNOLOGY FOCUS - FOOD - Preferred Process: Steps (1) and (2) further comprises step (3), isolation of the gelling protein from (2), comprising: (A) centrifugation after cryoprecipitation to obtain a pellet containing the gelling protein; and (B) isolating this pellet.

The process also includes (4), isoelectric precipitation of an alkaline solution obtained after (3). Step (4) includes (5), adjusting the alkaline solution obtained after (3) to a pH of 4.5. After step (4) separation gives a protein isolate for use in food industries and a supernatant containing oligosaccharides. This supernatant is recycled and reused in a process for obtaining a gelling protein. After this the oligosaccharides are recovered from the supernatant. The protein is induced to gel by cold-set gelation.

L10 ANSWER 8 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2000-430676 [37] WPIDS

DNC C2000-130833

TI Adhesive for cellulosic components e.g. plywood, comprises soy protein, modified with e.g. salt or urea.

DC E12 E16 G03

IN BIAN, K; SUN, X

PA (UNIV) UNIV KANSAS STATE RES FOUND; (BIAN-I) BIAN K; (SUNX-I) SUN X

CYC 86

PI WO 2000008110 A1 20000217 (200037)* EN 46p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU
LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
TT UA UG UZ VN YU ZA ZW

AU 9953952 A 20000228 (200037)

US 2002005251 A1 20020117 (200212)

ADT WO 2000008110 A1 WO 1999-US17955 19990806; AU 9953952 A AU 1999-53952
19990806; US 2002005251 A1 CIP of US 1998-130667 19980807, Cont of US
1999-337294 19990621, US 2001-896751 20010702

FDT AU 9953952 A Based on WO 200008110

PRAI US 1999-337294 19990621; US 1998-130667 19980807; US 2001-896751
20010702

AB WO 200008110 A UPAB: 20000807

NOVELTY - The soy protein is modified with an organic alkali sulphate and/or sulphonate salt; and/or a guanidine, urea or thiourea.

DETAILED DESCRIPTION - Adhesive comprises a soy protein that has reacted, in an aqueous system, with a modifier comprising:

(1) optionally saturated alkali metal 8-22 C sulphate and/or sulphonate salt; and/or

(2) compound of formula (I).

R = H or 1-4 C optionally saturated group

X = O, NH or S

When the modifier is urea, it is present at at least 6 wt.%.

An INDEPENDENT CLAIM is also included for a soy flour adhesive containing at least 50 wt.% **soy protein**, that is modified with an agent of formula (I) other than urea.

USE - Used for adhering cellulosic components, especially wood (claimed), e.g., plywood and particle board. It is also used in papermaking, book binding, textile sizing, abrasives and matches.

ADVANTAGE - The shear strength of the bond formed by the adhesive is stronger (at least 30 kg/cm² (ASTM D-906, claimed)) than prior art. The adhesives have higher water resistance. It uses less valuable raw material and produces less pollution than petroleum based adhesives.

Dwg.0/24

TECH

UPTX: 20000807

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Process: An aqueous dispersion of soy bean isolate is reacted with at least 10 wt.% urea or 0.1-15 wt.% specific sodium salt, at pH less than 8 (less than 7), 10-80 degrees C (20-50 degrees C) and ambient pressure. The protein has less than 10 (no) urease activity. The slurry is in the form of a freeze dried powder.

L10 ANSWER 9 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2000-386294 [33] WPIDS

DNC C2000-117086

TI Emulsion useful for polymerization, comprises aqueous and non-aqueous phase proteinoids and modified hydrolyzed vegetable protein, non-alpha-amino acid, poly amino acid and/or peptide emulsifiers.

DC A96 B04

IN KANTOR, M L

PA (EMIS-N) EMISPHERE TECHNOLOGIES INC

CYC 1

PI US 6051258 A 20000418 (200033)* 14p

ADT US 6051258 A US 1995-475885 19950607

PRAI US 1995-475885 19950607

AB US 6051258 A UPAB: 20000712

NOVELTY - Emulsion (I) comprising an aqueous phase (A), non-aqueous phase (B) and (C) chosen out of mixed amino acid proteinoid emulsifier, hydrolyzed vegetable protein emulsifier modified with an amine reactive modifying agent, acylated or **sulfonated** non- alpha -amino acid emulsifier, poly amino acid emulsifier, peptide emulsifier or their combinations, is new.

USE - (I) is useful for emulsion polymerization and for pharmaceutical preparation.

ADVANTAGE - (I) has improved stability against degradation and/or decomposition and is readily available, easy to prepare and inexpensive. The formulation methods are cost effective and the preparation is simple.

Dwg.0/0

TECH

UPTX: 20000712

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Composition: (I) is an oil-in-water or water-in-oil emulsion and comprises 1-15 weight% (preferably 4-8 wt.%) of emulsifier based on 100 weight parts of emulsion. (B) comprises soy oil and at least one vinyl monomer preferably vinyl acetate, butyl acrylate, methyl methacrylate or their mixtures. The mixed amino acid proteinoid emulsifier (E) is a linear, branched or cyclic proteinoid of mixed amino acids and comprises diketopiperazine, acid or base soluble proteinoid, a thermal, random or directed condensation polymer of mixed amino acids. (E) has a molecular weight of 250-2400 (preferably 250-400) and comprises 2-20 (preferably 2-8) amino acids

selected from a proteinoid having the molar composition Glu-Asp-2Arg-Phe, Glu-Asp-Tyr-Phe-0.5Orn or Glu-Asp-0.4Lys-Phe. The **modified** hydrolyzed vegetable **protein** emulsifier comprises acid hydrolyzed **soybean protein** and the amine reactive **modifying** group is benzene sulfonyl, benzoyl, phthaloyl, tetrahydrophthaloyl or cyclohexanoyl group. The acylated non-alpha-amino acid is N-cyclohexanoyl-6-aminohexanoic acid.

L10 ANSWER 10 OF 30 WPIDS (C) 2003 THOMSON DERWENT
 AN 2000-349906 [30] WPIDS
 CR 1998-557169 [47]
 DNC C2000-106405
 TI High-beta-conglycinin soybeans compositions are useful in mimicking texturizing properties of casein in good tasting beverages while maintaining or improving physiological benefits of soy protein ingredients.
 DC A97 D11 D13 D16
 IN BRINGE, N A
 PA (MONS) MONSANTO CO; (MONS) MONSANTO TECHNOLOGY LLC; (MONS) MONSANTO TECHNOLOGY CO
 CYC 89
 PI WO 2000019839 A2 20000413 (200030)* EN 80p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
 OA PT SD SE SL SZ TZ UG ZW
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
 FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS
 LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ
 TM TR TT TZ UA UG UZ VN YU ZA ZW
 AU 9965032 A 20000426 (200036)
 EP 1119262 A2 20010801 (200144) EN
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI
 BR 9914392 A 20010731 (200146)
 CN 1326321 A 20011212 (200225)
 ADT WO 2000019839 A2 WO 1999-US22673 19990930; AU 9965032 A AU 1999-65032 19990930; EP 1119262 A2 EP 1999-952992 19990930; WO 1999-US22673 19990930; BR 9914392 A BR 1999-14392 19990930; WO 1999-US22673 19990930; CN 1326321 A CN 1999-813346 19990930
 FDT AU 9965032 A Based on WO 200019839; EP 1119262 A2 Based on WO 200019839; BR 9914392 A Based on WO 200019839
 PRAI US 1998-167810 19981007
 AB WO 200019839 A UPAB: 20020418
 NOVELTY - High-beta-conglycinin soybeans compositions, comprising beta-conglycinin content greater than 40% and glycinin content less than 10%, are useful in mimicking texturizing properties of casein in good tasting beverages while maintaining or improving physiological benefits of soy protein ingredients.
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
 (1) a method for preparing the composition, the method comprising:
 (a) contacting defatted soy bean material and an aqueous solvent to form a mixture of soluble and insoluble components, a portion of the protein being solubilized in the aqueous solvent; (b) adjusting the pH of mixture to above 6.7 to increase the portion of the protein solubilized in the aqueous solvent; (c) removing insoluble components from the mixture; (d) adjusting the pH of the mixture to a suitable lower pH to **precipitate** a portion of the protein solubilized in the aqueous solvent; (e) recovering the **precipitated** protein; (f) adjusting the pH of the mixture recovered to 6.7-7.2; and (g) drying the mixture;
 (11) a method of **preparing** a low fat beverage mix having good mouthfeel, the method comprising: (a) dry blending highly soluble

soy protein composition as above to a final concentration in formula of 20-80% with a sweetener; and (b) packaging the mix;

(12) a method of **preparing** a nutritional food bar having good textural stability, the method comprising: (a) adding a **soy protein** composition as above to a final concentration of formula of 5-20%, calcium caseinate and mineral premix and blending the mixture; (b) adding oil, lecithin, flavor and mixing; (c) adding gum, polydextrose, maltodextrin, grain, soy oligosaccharides, crisp rice and mixing; (d) adding high fructose corn syrup, honey and glycerin and mixing; and (e) rolling out on flat surface and cutting into bars;

(13) a method of **preparing** a frozen dessert containing **soy protein** having a high stability against textural defects caused by freezing and thawing, the method comprising: (a) dry blending highly soluble **soy protein** composition as above to a final concentration in the formula of 5-20% and adding sweetening and thickening composition; (b) adding dry blend to water at 55 deg. C with agitation; and (c) adding oil, pasteurizing, homogenizing, and freezing the blend;

(14) a method of **preparing** a liquid coffee creamer containing **soy protein** having high freeze-thaw stability and maintaining a stable emulsion in coffee, the method comprising: (a) dry blending corn syrup solids, dipotassium phosphate and emulsifiers with highly soluble **soy protein** composition as above to a final concentration in formula of 0.5-2%; (b) adding the dry blend to water at 55 deg. C with agitation; and (c) adding oil with agitation, homogenizing and packaging the dry blend;

(15) a dietary protein having low methionine and high arginine content useful for maintaining healthy homocysteine levels in humans;

(16) a method of **preparing** a **soy protein** composition as above with a **sulfur** amino acid content less than 24 mg/g protein and an arginine content greater than 70 mg/g protein, the method comprising ultrafiltration of a **soy protein isolate** under conditions which selectively remove high cysteine and methionine proteins while retaining high arginine and low methionine proteins; (17) a **soy protein** composition as above with a **sulfur** amino acid content less than 24 mg/g and an arginine content greater than 70 mg/g protein;

(18) a nutritional product for lowering serum cholesterol and triglycerides in humans comprising a **soy protein** composition as above;

(19) a nutritional processed cheese analog for maintaining bone health comprising a **soy protein** composition as above, oil, sodium citrate and NaCl;

(20) a **soy protein** composition as above rich in lysine, methionine, cysteine and arginine amino acids;

(21) an animal feed composition made using a soybean meal made from high beta-conglycinin soybeans, which is rich in lysine, methionine, cysteine and arginine amino acids;

(22) a method of increasing the composition of Bowman Birk inhibitor in soybeans, the method comprising reducing the expression of **sulfur** containing proteins in soybeans;

(23) a method for preparing dietary protein composition having Bowman Birk inhibitor at greater than 0.4% of total protein, the method comprising the use of soybean having a beta-conglycinin and glycinin content as above;

(24) a method for maintaining low levels of serum cholesterol and serum triglyceride for cardiovascular health, the method comprising administering a nutritional supplement having Bowman Birk inhibitor at greater than 0.4% of the total protein;

(25) a method for producing a soybean having a beta conglycinin and

glycinin content as above in which Kunitz Trypsin inhibitor and Bowman Birk inhibitor are not expressed, the method being selected from: (a) mutation; (b) introduction of antisense genes; or (c) suppression of transcription;

(26) a food gel at pH 5.5-6.2, comprising the protein composition and NaCl or KCl;

(27) a method of **preparing** bread, the method comprising:

(a) combining oil, salt, sugar, water and yeast; (b) adding a combination of bread flour and a **soy protein** composition as above and mixing; (c) kneading the dough until smooth; (d) allowing dough pieces to rise; and (e) baking; and

(28) a method of producing a soybean having a beta-conglycinin and glycinin content as above in which group 1 glycinins are not expressed, the method being selected from: (a) introduction of antisense genes; and (b) suppression of transcription...

USE - The soybean composition is useful for mimicking the texturizing properties of casein while also maintaining or improving physiological benefits of soy protein ingredients (e.g. cholesterol or triglyceride lowering properties).

ADVANTAGE - The high stability of the high beta-conglycinin compositions against protein-protein aggregation reactions is valuable for creating good tasting beverages and beverage mixes. Cheese with good spreadability, gloss and smoothness can be made and cheese with good firmness and meltability can also be created. High beta-conglycinin compositions demonstrate excellent emulsifying and gelling properties, relevant to meat applications.

Dwg.0/0

TECH

UPTX: 20000624

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred **Soy**

Protein Composition: The composition is selected from soybean meal, soyflour, defatted **soyflour**, **soymilk**, spray-dried **soymilk**, **soy protein** concentrate, texturized **soy protein** concentrate, hydrolyzed **soy protein**, **soy protein**

isolate and spray-dried tofu. The beta-conglycinin comprises a mixture of alpha, alpha prime and optionally beta subunits. The beta-conglycinin optionally lacks alpha prime subunit and optionally lacks alpha subunit. The sum of cysteine and methionine in the composition is greater than 24 (especially 26) mg/g of protein. The **sulfur** amino acid content is less than 24 mg/g protein and the arginine content is greater than 790 mg/g protein. Less than 10 vol% of the particle in the composition is greater than 10 microns in diameter, as measured by adding enough of the composition to water circulating in a horiba LA910 instrument equipped with a persitaltic pump to obtain a light transmittance of 80-90% and mixing for 10 minutes with agitation speed 2 and circulation speed of 2, and using a relative reflectance index of 1.02-00i. The nitrogen solubility index (NSI) of the composition is greater than 90% at a pH of 7-7.4. The protein of the composition is denatured such that the NSI is less than 70% at a pH of 7-7.4 and greater than 20% of the particle volume of the composition is from particles greater than 10 microns in diameter, measured as described above. The composition has a color reflectance value for whiteness (L value) of greater than 86.5 and a reflectance value for yellowness (b value) of less than 10, using a Hunter Lab colorimeter. The composition is partially hydrolyzed using a protease and the hydrolysis product of beta-conglycinin are approximately 30 kDa. The composition when sonicated for one minute with peanut oil, NaCl, sucrose and CaCl₂, will form an emulsion having a median particle diameter of less than 12 microns. The particle diameter is not significantly altered by heating the emulsion to 90degreesC and cooling. The emulsion comprises 0.4% NaCl, 5% sucrose and 4 mM CaCl₂ in a

pH 6.7 water phase and 1% protein from the composition and 10% peanut oil. Preferred Method For **Preparing** The Composition: The method also comprises heat-treatment at pH 6.7-7.2 between steps (a) and (b), steps (c) and (d), steps (f) and (g), steps (a) and (b) and (f) and (g) or steps (c) and (d) and (f) and (g). The mixture of step (c) is adjusted to pH 6.7-7.2 or 8.5-9. The heat treatment is selected from 72-90 degreesC for 15-20 seconds, 80-90 degreesC for 5-10 minutes or 120-154degreesC for 7-20 seconds.

Preferred Dietary **Protein**: The **protein** also comprises **soy protein** composition as above with a **sulfur** amino acid content less than 24 mg/g protein and an arginine content greater than 70 mg/g protein.

Preferred Nutritional Product: The product is a liquid beverage of dry beverage mix further comprising sucrose, calcium carbonate, flavor, salt, gum and vitamin. or a meat analog further comprising salt, phosphate and flavor and the composition is denatured or ground meat comprising color and flavor. The gum is carrageenan, xanthan or guar gum.

Preferred Method For Increasing Bowman Birk Inhibitor In **Soybeans**

: The **sulfur** containing **protein** comprises group 1 glycinins. The expression of **sulfur** containing proteins is reduced by gamma-irradiation, introduction of antisense genes or by transcriptional control.

L10 ANSWER 11 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2000-116333 [10] WPIDS

DNC C2000-035482

TI Preparation of protein coating using crosslinking proteinaceous material and applying reaction mixture on solid.

DC A82 D16 G02

IN HOPPE, H; KRETZSCHMAR, G

PA (AVET) AVENTIS RES & TECHNOLOGIES GMBH & CO KG

CYC 87

PI WO 9961538 A1 19991202 (200010)* EN 35p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ UG ZW

W: AE AL AM AU AZ BA BB BG BR BY CA CN CU CZ EE GD GE HR HU ID IL IN
IS JP KG KP KR KZ LC LK LR LT LV MD MG MK MN MX NO NZ PL RO RU SG
SI SK SL TJ TM TR TT UA US UZ VN YU ZA

EP 969056 A1 20000105 (200010) EN

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

AU 9942648 A 19991213 (200020)

ADT WO 9961538 A1 WO 1999-EP3466 19990520; EP 969056 A1 EP 1998-109515
19980526; AU 9942648 A AU 1999-42648 19990520

FDT AU 9942648 A Based on WO 9961538

PRAI EP 1998-109515 19980526

AB WO 9961538 A UPAB: 20000228

NOVELTY - Protein coating is prepared by dispersing a proteinaceous material in water and adding a crosslinking agent containing an epoxide or polyepoxide. The reaction is allowed to proceed and the obtained reaction mixture is applied on a solid.

DETAILED DESCRIPTION - A coating material is prepared by dispersing 5-50 weight percent (wt.%) (preferably 10-25 wt.%) proteinaceous material in water and adding 0,1-25 wt.% (preferably 5-20 wt.%) crosslinking agent containing an epoxide or polyepoxide preferably epichlorohydrin-modified (polyamine, polyamide, polyamidoamine or amine containing back bone polymer). The reaction between proteinaceous material and crosslinking agent is allowed to proceed and the obtained mixture is applied on a solid.

An INDEPENDENT CLAIM is also included for the reaction mixture

compositions comprising: (a) Casein 5-25 wt.% (preferably 15-20 wt.%) and optionally soy protein; (b) 0,1-25 wt.% polyepoxy (preferably 1-15 wt.%) and optionally; (c) 5-50 wt.% glycerol (preferably 10-30 wt.%); (d) 10 wt.% stearic acid (preferably 1-5 wt.%); (e) urea guanidine and/or calcium hydroxide; and (f) an antimicrobial agent.

USE - The coating is applied on technical article in particular a car, a bicycle, a pipe, a frame, a ceramic, a stone, a concrete, a glass paint, a wood, a cork, a wall paper, a cardboard etc. (claimed).

ADVANTAGE - The protein coating is biocompatible and water-resistant and protects or paints the surface of a technical article. The coating is a temporary coating and removable by hot water treatment with mechanical aid, detergent or enzyme or any combination. The naturally occurring biopolymers like polysaccharide or protein used in the coating are biocompatible and biodegradable. The adhesion of the protein coating is generally strong, mechanically resistant to scratches, weather-resistant, waterproof and also resistant to dilute sulfuric acid (5%), soot, alkali (0,1% NaOH), dust, dirt, iron dust and sparks. In general the coatings have good adherence sufficient mechanical property and can be removed by mechanical and water treatment. Another advantage is that no plastic waste material need to be collected, stored, recycled or deposited. Since the aqueous residues or coatings are biodegradable they can be discharged with waste water.

Dwg.0/0

TECH

UPTX: 20000228

TECHNOLOGY FOCUS - POLYMERS - Preferred Proteinaceous Material: The proteinaceous material is animal, plant or microbe-derived **protein**, preferably keratin, gelatine, collagen, gluten, **soy protein**, and/or casein.

Preferred Method: The proteinaceous material is pretreated with heat, a surface active compound preferably dodecyl sulfate; a chaotropic agent, preferably urea, guanidine, guanidinium salt or calcium chloride; an acid; a base; a reducing agent, preferably **sulfite**, bisulfite or hydrogensulfide; or a proteolytic enzyme. The process is carried out at 20-90 degreesC (preferably 20-70 degreesC); and at pH of 3-12 (preferably 4-10); 10-80 wt.% water preferably 20-60 wt.% of the total proteinaceous material and water; 50 wt.% of cosolvent preferably methanol or ethanol; 5-50 wt.% plasticizer preferably 20 wt.%; 5 wt.% surfactant (preferably 0.01-0.5 wt.%); 10 wt.% adhesion improver (preferably 1-5 wt.%); 50 wt.% filler preferably 3-30 wt.%; 3 wt.% biocide (preferably 1-3 wt.%); 5 wt.% of coloring agent and 5 wt.% of flavor are added to the reaction mixture. The reaction mixture is applied on solid by spraying, dipping, brushing or casting. The coated solid is then dried and/or cured at a temperature 20-120degreesC, preferably 40-90 degreesC and/or by radiation, preferably IR, UV and microwave.

Preferred Crosslinking Agent: The crosslinking agent is formaldehyde; glyoxal; glutaraldehyde; diisocyanate; a (poly)isocyanate; a bis(meth)acrylate, preferably N, N-ethylene bis(meth)acrylamide; a (poly) aziridine; a carbodiimide; a resin, preferably melamin-formaldehyde, urea-formaldehyde, benzoguanidine-formaldehyde; a diglycidyl ether, a glycidyl ester; a polyvalent cation, preferably calcium or zinc; and/or acetoacetate.

Preferred Plasticizer: The plasticizer is polyol, preferably ethylene glycol, propylene glycol, glycerol, di and polyethylene glycols, di and polypropylene glycols or 2-methyl-1,3-propandiol; a sugar alcohol, preferably sorbitol, mannitol, xylitol or isosorbide; a hydroxyl acid preferably lactic acid, citric acid or gluconic acid; a hydroxyl ester, preferably lactic or citric acid monoalkyl ester-a sugar preferably glucose, fructose, saccharose or xylose; a sulfonamide, preferably benzene sulfonamide, toluene sulfonamide, ethane sulfonamide, N-alkyl sulfonamide, N,N-dialkylsulfonamide and/or N-pheylsulfonamide; or preferably a

combination of butyl acetate or dibutyl phthalate.

Preferred Surfactant: The surfactant is stearate, anionic surfactant, preferably alkaline metal salt or ammonium salt or alkyl, aryl, alkaryl, aralkyl **sulfonate**, sulfate, polyether sulfate, phosphates or phosphonate; a cationic surfactant, preferably an alkyl ammonium salt, a non-ionic surfactant preferably alkoxylated fatty acid, ester, alcohol, amide, amine or alkylpolyglycoside, a 6-O-monoester alkyl glycoside, alkyl glucamide, sucrose ester and/or Zwitterionic surfactant.

Preferred Adhesion Improver: The adhesion improver is 12-20C fatty acid, preferably lauric acid, palmitic acid, stearic acid, oleic acid or a vegetable oil, preferably soybean oil.

Preferred Filler: The filler is an organic filler, preferably cellulosic material (cellulose); a polysaccharide, preferably starch (corn, potato, wheat, tapioca, waxy rice, high amylose corn, amylose, waxy rice, oat, sorghum), chemically **modified** or pregelatinized starch; a polymer preferably acrylin resin, polyvinyl acetate, polyurethane; or an inorganic filler, preferably calcium carbonate, carbon, silicon or silicate and/or calcium sulfate.

Preferred Substrate: The selected solid for coating is a metal article preferably a steel, aluminum, copper, zinc or alloys, glass-a ceramic preferably alumina, silica or zeolite; rubber; polyurethane; polyacrylate; polyethylene; polypropylene and/or polyester.

Preferred Coating: The thickness of wet coating is 5-1000 mum preferably 20-100 mum and that of dried coating is 2-100 mum preferably 15-80 mum.

L10 ANSWER 12 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2000-062444 [05] WPIDS

DNC C2000-017330

TI Stabilized aqueous phenolic binder for mineral wool.

DC A18 A21 A28 A81 F04 G03 L01

IN HANSEN, E L; NISSEN, P C

PA (ROCA) ROCKWOOL INT AS

CYC 86

PI WO 9960042 A1 19991125 (200005)* EN 32p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU
LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
TT UA UG US UZ VN YU ZA ZW

AU 9937015 A 19991206 (200019)

EP 1084167 A1 20010321 (200117) EN

R: AT BE DE DK ES FI FR GB IT NL SE SI

HU 2001001812 A2 20010928 (200168)

EP 1084167 B1 20020904 (200266) EN

R: AT BE DE DK ES FI FR GB IT NL SE SI

DE 69902783 E 20021010 (200274)

ADT WO 9960042 A1 WO 1999-DK274 19990518; AU 9937015 A AU 1999-37015 19990518;

EP 1084167 A1 EP 1999-919130 19990518, WO 1999-DK274 19990518; HU

2001001812 A2 WO 1999-DK274 19990518, HU 2001-1812 19990518; EP 1084167 B1

EP 1999-919130 19990518, WO 1999-DK274 19990518; DE 69902783 E DE

1999-602783 19990518, EP 1999-919130 19990518, WO 1999-DK274 19990518

FDT AU 9937015 A Based on WO 9960042; EP 1084167 A1 Based on WO 9960042; HU

2001001812 A2 Based on WO 9960042; EP 1084167 B1 Based on WO 9960042; DE

69902783 E Based on EP 1084167, Based on WO 9960042

PRAI DK 1998-679 19980518

AB WO 9960042 A UPAB: 20000128

NOVELTY - The aqueous phenolic binder comprises emulsified phenolic resin (consisting of phenolic resin having phenol conversion of 99% or more) and less than 0.1 weight % (wt. %); preferably 0.1-0.005 wt. % of protective colloid.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(i) The method of producing emulsifiable phenolic resin which involves reacting a phenolic component such as phenol with formaldehyde, in the presence of an alkaline catalyst to effect 99% or more conversion of phenol. The reaction mixture is cooled to prevent further condensation, followed by adding 0.1 wt. % of protective colloid;

(ii) The method of producing stabilized aqueous phenolic binder which involves adjusting pH of emulsifiable phenolic resin to 7-10, followed by adding water so as to form a two-phase system;

(iii) Method of producing mineral wool which involves applying the aqueous phenolic binder on mineral wool and curing the binder; and

(iv) The produced mineral wool containing 0.5-15 wt. %, preferably 0.5-6 wt. % of the binder.

USE - The stabilized aqueous phenolic binder is used for mineral wool production (claimed).

ADVANTAGE - Phenolic resin having high molecular weight and low content of unreacted components can be obtained. The protective colloid facilitates stabilization of the phenolic resin during transportation and storage. Since the amount of ammonia added in order to react with excess formaldehyde can be greatly reduced, emission of ammonia can be substantially lowered. The reduced amount of ammonia also mitigates separation or formation of solids or crystals in the resin, during storage. The method is economical due to the limited amount of protective colloid required and the presence of the colloid results in production of mineral wool having enhanced properties such as tensile strength.

Dwg.0/0

TECH

UPTX: 20000128

TECHNOLOGY FOCUS - POLYMERS - Preferred Colloid: The protective colloid is a polymeric and/or copolymeric emulsifier containing acryl and/or urethane groups. Polyethylene, polyvinyl acetate, polyvinyl alcohol, polycarboxylic acid such as polyacrylate, polysulfonic acid such as polystyrenesulfonic acid, polyesters such as glycol polyacrylate, polyamides such as polyacrylamide, polyurethanes such as urethane elastomers (containing ionic carboxylate or sulfonate groups or quaternary ammonium ion) or urethane elastomers (containing nonionic hydrophilic groups), polyvinyl pyrrolidone, polyethylene oxide and/or polymeric cationic compounds is used as the polymeric emulsifier. Styrene copolymers such as styrene-acrylate polymers or styrene-ethylene oxide polymers, polyvinyl-maleic acid copolymers such as styrene-maleic anhydride or vinyl acetate-maleic acid ester copolymer, polyvinyl-polyalkylene copolymers such as vinylacetate-ethylene copolymer, ethylene-acrylic acid-acrylic acid ester polymers or ethylene acrylic acid-acrylonitrile copolymers, vinyl copolymers such as vinylacetate polymers, acrylic acid-acrylonitrile polymers, acrylic acid-acrylamide polymers, butadiene-acrylonitrile copolymers and/or acrylonitrile-butadiene-styrene polymers (ABS) are used as the copolymeric emulsifier. Mixtures of the polymeric and copolymeric emulsifiers may also be used as the protective colloid. The protective colloid is essentially an addition terpolymer consisting of a carboxylic functional monomer (X) of formula (I), a water-insoluble monomer (Y) of formula (II) and a urethane functional monomer (Z) of formula (III):

R₁, R₃ = H, methyl or ethyl;

R₂ = methyl, ethyl, propyl or butyl;

R₄ = 2-4C oxyalkylene group;

R₅ = 5-15C group;

n = 6-150, preferably 50.

Modified ethoxylate urethane such as Polyphobe 102, Polyphobe 103 or TR117 is particularly used as the protective colloid.

Alternatively, the protective colloid is a natural emulsifier such as lanolin, lecithins, albumins or cholesterol such as egg yolk, waxes such

as bee wax, lignosulfonates, cellulose, cellulose derivatives such as cellulose ether, **proteins** such as casein, **whey protein** or gelatin, polysaccharides such as starch, dextrin or pectin, rubber such as natural rubber latex, gum arabic, mastics or guar gum, mucilages from algae or lichen (alginates) such as carrageenan or agar-agar, saponins and/or locust bean flower.

Preferred Resin: The phenolic resin has a water dilutability of at most 5. The phenolic resin is the reaction product of phenol and aldehyde reacted in the molar ratio of less than 1:1, preferably 1:3-1:4.5. The resin contains 15-60 wt. %, preferably 20-45 wt. % of solids. The pH of the phenolic binder resin is more than 7 and the content of free phenols in the resin is less than 0.5 wt. %.

Preferred Method: The reaction mixture obtained by reacting phenolic component with aldehyde (for production of phenol resin) has a water dilutability of 0.5-5 particularly 2-4. The alkaline catalyst is neutralized during production of phenolic resin. An aldehyde scavenger, silane and ammonium sulfate are added during production of the stabilized aqueous phenolic binder. The stabilized aqueous phenolic binder is produced just before applying on the mineral wool.

L10 ANSWER 13 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 2000-015433 [02] WPIDS

DNC C2000-003359

TI Method of coating articles with a crosslinked proteinaceous material to give a temporary water resistant coating which can be easily removed with water after enzyme or detergent treatment.

DC A21 A82 D16 E19 G02

IN HOEKSTRA, A; HOPPE, H; KRETZSCHMAR, G; RABENBERG, M R J H; RABENBERG, M

PA (AVET) AVENTIS RES & TECHNOLOGIES GMBH & CO KG

CYC 87

PI EP 960922 A1 19991201 (200002)* EN 14p

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

WO 9961539 A1 19991202 (200004) EN

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ UG ZW

W: AE AL AM AU AZ BA BB BG BR BY CA CN CU CZ EE GD GE HR HU ID IL IN
IS JP KG KP KR KZ LC LK LR LT LV MD MG MK MN MX NO NZ PL RO RU SG
SI SK SL TJ TM TR TT UA US UZ VN YU ZA

AU 9942649 A 19991213 (200020)

ADT EP 960922 A1 EP 1998-109517 19980526; WO 9961539 A1 WO 1999-EP3467
19990520; AU 9942649 A AU 1999-42649 19990520

FDT AU 9942649 A Based on WO 9961539

PRAI EP 1998-109517 19980526

AB EP 960922 A UPAB: 20000112

NOVELTY - A method of coating a solid by dispersing 5-50 (preferably 10-35, especially 10-25) wt.% of a proteinaceous material in water, adding 0.1-25 (preferably 1-25, especially 5-20) wt.% of a crosslinking agent, applying to the solid and allowing to crosslink.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for

(1) a casein composition comprising casein, glyoxal and optionally urea-formaldehyde resin, a polyaziridine and optionally: 5-50 (preferably 10-30) wt.% glycerol, up to 10 (preferably 1-5) wt.% stearic acid, urea, guanidine and/or calcium hydroxide and an antimicrobial agent;

(2) an article coated by the method or with the casein composition; and

(3) a coated article which is a technical article and in particular a car, bicycle, pipe, frame, ceramic, stone, concrete, glass paint, wood, cork, wallpaper or cardboard.

USE - The method is used to provide a temporary protective coating

on, e.g., finished cars or other articles to protect in transit.

ADVANTAGE - The coating is sufficiently durable and waterproof to protect the article for the necessary period after which it may easily be removed by washing with water. Since it is biodegradable it may be flushed away with the water used to remove it unlike plastic coatings which have to be peeled off, stored and disposed of. It does not require volatile organic solvents.

Dwg.0/0

TECH

UPTX: 20000112

TECHNOLOGY FOCUS - POLYMERS - Preferred proteinaceous material: The preferred material is animal, plant or microbe derived **protein**, more preferably keratin, gelatin, gluten, **soy protein** or casein or a mixture of them. The material is pretreated with heat or with a surfactant (most preferably dodecyl sulfate), a chaotropic agent (most preferably urea), guanidine, a guanidium salt, an acid, a base, a reducing agent (preferably **sulfite**, bisulfite or hydrogensulfide) or a proteolytic enzyme.

Preferred crosslinking agent: The crosslinking agent is formaldehyde, glyoxal, glutaraldehyde, diisocyanate, a (poly)isocyanate, a bis(meth)acrylate (most preferably N,N-ethylenebis(meth)acrylamide), a (poly)aziridine, a carbodiimide, a resin (most preferably melamine-formaldehyde, urea-formaldehyde, benzoguanidine-formaldehyde), a diglycidyl ether, a glycidyl ester, a polyvalent cation (preferably calcium or zinc), an acetoacetate or any combination of these.

Preferred process conditions: The process is carried out at 20-90degreesC (more preferably 20- 70degreesC) at pH 3-12 (more preferably 4-10).

Preferred additional components: The additional components include:

- (a) up to 50 wt.% of a co-solvent, preferably methanol or ethanol;
- (b) 5-50 (more preferably 10-30, especially 20) wt.% of a plasticizer which is a polyol (preferably ethylene/propylene glycol, glycerol, a di- or polypropylene glycol, or 2- methyl-1,3-propanediol), a sugar alcohol (preferably sorbitol, mannitol, xylitol or isosorbide), a hydroxyl acid (preferably lactic, citric or gluconic), a hydroxyl ester (preferably a citric/lactic monoalkylester), a sugar (preferably glucose, fructose, saccharose or xylose) or a sulfonamide (preferably benzene/toluene/ethane/N-alkyl/N,N-dialkyl/N-phenylsulfonamide) or a combination (preferably of butyl acetate and dibutylphthalate);
- (c) up to 5 wt.% (more preferably 0.01-0.5 wt.%) of a surfactant which is a stearate, anionic surfactant (preferably an alkaline metal salt or ammonium salt of an alkyl-, aryl-, alkaryl-, aralkylsulfonate, -sulfate, -polyethersulfate, -phosphate or -phosphonate), cationic surfactant (preferably an alkylammonium salt), a nonionic surfactant (preferably an alkoxyated fatty acid, ester, alcohol, amine, amide or alkylpolyglycoside, a 6-O-monoesteralkylglycoside, an alkylglucamide, a sucrose ester or a zwitterionic surfactant) or a combination;
- (d) up to 10 wt.% (more preferably 1-5 wt.%) of an adhesion improver which is a 12-20C fatty acid (preferably lauric, palmitic, stearic or oleic or a mixture) or a vegetable oil (most preferably soybean oil);
- (e) up to 50 wt.% (preferably 3-30 wt.%) of filler which is preferably cellulosic (most preferably cellulose), a polysaccharide (most preferably corn/potato/wheat/tapioca/waxy rice/high amylose corn/oat/sorghum starch, amylose, chemically modified or pre-gelatinized starch) or a polymer (preferably an acrylic resin, polyvinyl acetate or polyurethane) or inorganic (preferably calcium carbonate, carbon, silica or silicate or calcium sulfate) or a combination;
- (f) up to 3 wt.% (more preferably 0.1-3 wt.%) of a biocide;
- (g) up to 5 wt.% of a coloring agent; and
- (h) up to 5 wt.% of a flavor.

Preferred application: The reaction mixture is applied by spraying, dipping, brushing or casting.

Preferred article: The article to be coated is preferably a technical article of metal (steel, aluminum, copper, zinc or alloys), glass, ceramic (alumina, silica, zeolite), rubber, polyurethane, polyacrylate, polyethylene, polypropylene, polyester or a combination.
 Preferred curing: The coating is cured at 20-90degreesC (preferably 20-90degreesC) or by IR, UV or microwave radiation.
 Preferred coating characteristics: The coating is protective or a paint, is temporary and is removable by hot water treatment with mechanical aid after treatment with an enzyme and/or detergent. Its wet coating thickness is 5-1000 mum (preferably 20-100 mum) and its dry thickness is 2-100 mum (preferably 15-80 microm).

L10 ANSWER 14 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1999-634077 [54] WPIDS

DNC C1999-185287

TI **Modification and isolation of protein,**
 especially **whey** or **soy proteins**, for
 augmenting the processing value of whey.

DC D13

IN SAVOLAINEN, J

PA (SAVO-I) SAVOLAINEN, J

CYC 21

PI WO 9955170 A1 19991104 (199954)* EN 25p

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: AU NZ US

FI 9800945 A 19991030 (200005)

AU 9937123 A 19991116 (200015)

EP 1076489 A1 20010221 (200111) EN

R: AT DE DK ES FR GB IE IT NL SE

FI 107116 B1 20010615 (200145)

AU 749685 B 20020704 (200255)

ADT WO 9955170 A1 WO 1999-FI347 19990428; FI 9800945 A FI 1998-945 19980429;

AU 9937123 A AU 1999-37123 19990428; EP 1076489 A1 EP 1999-919299

19990428, WO 1999-FI347 19990428; FI 107116 B1 FI 1998-945 19980429; AU

749685 B AU 1999-37123 19990428

FDT AU 9937123 A Based on WO 9955170; EP 1076489 A1 Based on WO 9955170; FI

107116 B1 Previous Publ. FI 9800945; AU 749685 B Previous Publ. AU

9937123, Based on WO 9955170

PRAI FI 1998-945 19980429

AB WO 9955170 A UPAB: 19991221

NOVELTY - A protein such as whey or soy (or their concentrate) is reacted with a reagent which forms **sulfite** ions to **sulfonate** the protein without an oxidizing agent. The **sulfonated** protein is **precipitated** at an acid pH. The **sulfonated** protein or the **precipitated** and/or soluble **sulfonated** protein is recovered and optionally processed.

USE - Processing (whey) proteins for human consumption and functional food products.

ADVANTAGE - Oxidation in order to change the conformation of the protein molecules is unnecessary as the **sulfitolysis** creates sufficient cleavage of disulfide bonds. Omission of oxidation simplifies and speeds up the process thereby rendering it more economically profitable. The processing value of whey is augmented and the profitability of cheese production is increased.

Dwg.0/0

TECH UPTX: 19991221

TECHNOLOGY FOCUS - FOOD - Preferred Conditions: The whey (concentrate) is reacted with the reagent which forms **sulfite** ions, at 40-65

degreesC, preferably at 50-60 degreesC. The soy (concentrate) is treated with the reagent at 60-80 degreesC, preferably at 65-75 degreesC. The pH

during the **sulfonation** of the protein is adjusted to 5.5-8, preferably 6-7. The concentration of **sulfite** for **sulfonation** is 0.02-0.20 M, preferably 0.05-0.10 M. The degree of **sulfonation** of the protein is affected by varying reaction conditions and amount of reagents used. The **sulfonated** proteins are **precipitated** as fractions of varying composition by adjusting the pH. The **sulfonated** proteins are **precipitated** by lowering the pH to 1.5-5.5, preferably 4.0- 5.0. Preferred Composition: The protein content of the whey concentrate is 9-12 weight %.

Preferred Method: **Sulfone** groups and **sulfites** are removed from the **sulfonated** proteins or the **precipitated** and/or soluble **sulfonated** protein, by lowering the pH to 1.5-4. On lowering the pH both **sulfones** and **sulfites** are liberated as **sulfur dioxide** and free **sulfhydryl** groups are created in the protein. The remaining **sulfite** is oxidized to **sulfate** by blowing air into the mixture at pH 4-7. The disulfide groups are formed again from the free **sulfhydryl** groups by blowing air into the protein mixture at pH 4.5-8.5 and at 45-75 degreesC.

L10 ANSWER 15 OF 30 WPIDS (C) 2003 THOMSON DERWENT
 AN 1999-478834 [40] WPIDS
 CR 1999-478829 [40]
 DNC C1999-140842
 TI New quaternary ammonium compounds.
 DC A25 A26 A96 A97 C07 D21 D25 E19 F06 F09 H01 H08 J01 M14
 IN FRIEDLI, F; KOHLE, H; KOEHLE, H; FRIEDLI, F E; KOEHLE, H J
 PA (WITC) WITCO CORP; (WITC) WITCO SURFACTANTS GMBH; (GOLD) GOLDSCHMIDT CHEM CORP; (GOLD-N) GOLDSCHMIDT REWO GMBH & CO KG
 CYC 41
 PI WO 9935223 A1 19990715 (199940)* EN 65p
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: AU BR CA CN CZ HR HU ID IL JP KR MX NO NZ PL RO RU SG SK US YU
 ZA 9900372 A 19990929 (199947)# 67p
 AU 9922149 A 19990726 (199952)
 EP 1045891 A1 20001025 (200055) EN
 R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
 CZ 2000002559 A3 20010613 (200138)
 HU 2001000282 A2 20010628 (200143)
 BR 9906839 A 20011030 (200173)
 SK 2000001054 A3 20011106 (200176)
 JP 2002500235 W 20020108 (200206) 91p
 US 6376455 B1 20020423 (200232)
 ADT WO 9935223 A1 WO 1999-US295 19990107; ZA 9900372 A ZA 1999-372 19990119;
 AU 9922149 A AU 1999-22149 19990107; EP 1045891 A1 EP 1999-902090
 19990107, WO 1999-US295 19990107; CZ 2000002559 A3 WO 1999-US295 19990107,
 CZ 2000-2559 19990107; HU 2001000282 A2 WO 1999-US295 19990107, HU
 2001-282 19990107; BR 9906839 A BR 1999-6839 19990107, WO 1999-US295
 19990107; SK 2000001054 A3 WO 1999-US295 19990107, SK 2000-1054 19990107;
 JP 2002500235 W WO 1999-US295 19990107, JP 2000-527610 19990107; US
 6376455 B1 Provisional US 1998-71054P 19980119, WO 1999-US295 19990107, US
 2000-600007 20001122
 FDT AU 9922149 A Based on WO 9935223; EP 1045891 A1 Based on WO 9935223; CZ
 2000002559 A3 Based on WO 9935223; HU 2001000282 A2 Based on WO 9935223;
 BR 9906839 A Based on WO 9935223; SK 2000001054 A3 Based on WO 9935223; JP
 2002500235 W Based on WO 9935223; US 6376455 B1 Based on WO 9935223
 PRAI US 1998-71054P 19980109; ZA 1999-372 19990119; US 2000-600007
 20001122
 AB WO 9935223 A UPAB: 20020521

NOVELTY - Quaternary ammonium compounds of formula (I) and (II) are new.

DETAILED DESCRIPTION - Quaternary ammonium compounds of formula (I) and (II) are new:

R = -H, -CH₃ or -C₂H₅;

R₁, R₂, and R₃ = 6-22C fatty acid radicals;

A- = an inorganic or organic anion selected from fluoride, chloride, bromide, iodide, chlorite, chlorate, hydroxide, hypophosphite, phosphite, phosphate, carbonate, formate, acetate, lactate, and other carboxylates, oxalate, methyl sulfate, ethyl sulfate, benzoate or salicylate.

An INDEPENDENT CLAIM is included for a composition comprising the above compounds.

USE - The quaternary ammonium compounds can be used in fabric softener compositions, personal care formulations, detergent, rinse or drying auxiliary formulation for cars or a hydrophilic soft handle agent formulation for processing fabrics made from natural and/or synthetic fibers. The quaternary ammonium compounds can also be used in e.g. cleaning compositions, antistatic compounds, fabric softeners, hair conditioners, skin conditioners, paper deinking and ink flotation agents, asphalt emulsion agents, corrosion inhibitor agents, ore flotation agents, emulsion agents for herbicides, pesticides, miticides, fungicides or bacteriocides, car drying aid sprays, or drilling fluid additives.

ADVANTAGE - The quaternary ammonium compounds have good biodegradability and good soft handle and rewetting power for fabrics. They also have the ability to impart to fabric (e.g. articles of clothing, textiles) properties including softness to the touch, ease of handling, increased lubricity and a reduced tendency to carry or pick up static electricity. They can impart softness, lubricity, and improve the surface appearance of the skin or hair. They also have the ability to disperse hydrophobic material, to stabilize foam, and to enhance the penetration and wetting exhibited by the compositions.

Dwg.0/0

TECH

UPTX: 19991004

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Preparation:

The quaternary ammonium compounds are preferably prepared by esterification of methylethanolisopropanolamine with fatty acids in the molar ratio of from 1:1.5 to 1:2 and subsequent quaternization.

Preferred Composition: Compositions containing the quaternary ammonium compounds may also contain surfactants, e.g. ammonium lauryl sulfate, any alpha-olefin sulfonate, ammonium xylene sulfonate, sodium pareth sulfate, betaines, sulfosuccinates, glycinate, hydroxysultaines, cocamidopropyl betaine, hydroxysultaine, disodium lauroamphodiacetate, sodium cocoamphopropionate, sodium lauryl sulfosuccinate, laurylbetaine, polyethylene glycol (PEG) 1-300 glyceryl cocoate, decyl glucoside, almondamide diethanolamine (DEA), myristamide DEA, stearamide DEA, isostearamide DEA, behenamide monoethanolamine (MEA), palmitamide MEA, hydroxyethyl stearamide methylisopropanolamine (MIPA), ricinoleamide MIPA, behenamine oxide, dihydroxyethyl lauramine oxide, hydrogenated palm kernel amine oxide, soyamidopropylamine oxide, tallowamine oxide, nonylphenol ethoxylates, 5-20C linear or branched alcoxylates using ethylene oxide (EO), propylene oxide (PO), butylene oxide (BO), amine ethoxylates, alpha-polyglucosides and mixtures. The compositions may also contain e.g. silicone compounds of the polydimethylsiloxane and cationically-modified polydimethylsiloxane type, hydroxypivalyl hydroxypivalate, 2,2,4-trimethyl-1,3-pentanediol (TMPD), TMPD alcoxylates, ethanol, isopropanol, 1,2-cyclohexanedimethanol, hexylene glycol, 2-butoxyethanol, 6-12C diols/triols and ester diols/triols and their alcoxylated derivatives, fatty acids, fatty amides, fatty alcohols, fatty oils, mineral oil, silicone oils, diglycerides, naphthalinic hydrocarbons, acetylated lanolin, ammonium hydrolyzed collagen, capryloyl hydrolyzed

collagen, cocoyl hydrolyzed soy protein, glyceryl oleate, isocetyl stearate, jojoba oil, oleyl myristate, panthenol, stearyl citrate, wheat amino acids, beheneth-5, ceteth-10, corn oil PEG-8 esters, 12-13C-pareth-10, isodeceth-6, oleoyl ethyl glucoside, PEG-11 cocamide, PEG-4 isostearate, PEG-20 palmitate, PEG-16 tallate, polysorbate 20, trideceth-5 and mixtures.

L10 ANSWER 16 OF 30 WPIDS (C) 2003 THOMSON DERWENT
 AN 1999-478829 [40] WPIDS
 CR 1999-478834 [40]
 DNC C1999-140837
 TI New quaternary ammonium compounds.
 DC A25 A26 A96 A97 C06 C07 D21 D22 D25 E19 F06 F09 H01 H08 J01 M14
 IN FRIEDLI, F; KOEHLE, H; KOHLE, H
 PA (WITC) WITCO CORP; (WITC) WITCO SURFACTANTS GMBH; (GOLD) GOLDSCHMIDT CHEM CORP
 CYC 39
 PI WO 9935120 A1 19990715 (199940)* EN 67p
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: AU BR CA CN CZ HR HU ID IL JP KR MX NO NZ PL RO RU SG SK US YU
 AU 9921059 A 19990726 (199952)
 NO 2000003497 A 20000908 (200057)
 KR 2001034019 A 20010425 (200164)
 ADT WO 9935120 A1 WO 1999-US213 19990106; AU 9921059 A AU 1999-21059 19990106;
 NO 2000003497 A WO 1999-US295 19990107, NO 2000-3497 20000707; KR
 2001034019 A KR 2000-707615 20000710
 FDT AU 9921059 A Based on WO 9935120
 PRAI US 1998-71054P 19980109
 AB WO 9935120 A UPAB: 20020204

NOVELTY - Quaternary ammonium compounds of formula (I) and (II) are new.
 DETAILED DESCRIPTION - Quaternary ammonium compounds of formula (I) and (II) are new:

or A-(CH₃) (R)N+(CH₂CH₂OR₁)CH₂CH(CH₃)OR₂;

or A-(CH₃) (R)N+(CH₂CH₂OR₃)CH₂CH(CH₃)OH;

R = -H, -CH₃ or -C₂H₅;

R₁, R₂, and R₃ = 6-22C fatty acid radicals;

A- = an inorganic or organic anion selected from fluoride, chloride, bromide, iodide, chlorite, chlorate, hydroxide, hypophosphite, phosphite, phosphate, carbonate, formate, acetate, lactate, and other carboxylates, oxalate, methyl sulfate, ethyl sulfate, benzoate or salicylate.

USE - The quaternary ammonium compounds can be used in fabric softener compositions, personal care formulations, detergent, rinse or drying auxiliary formulation for cars or a hydrophilic soft handle agent formulation for processing fabrics made from natural and/or synthetic fibers (claimed). The quaternary ammonium compounds can also be used in e.g. cleaning compositions, antistatic compounds, fabric softeners, hair conditioners, skin conditioners, paper de-inking and ink flotation agents, asphalt emulsion agents, corrosion inhibitor agents, ore flotation agents, emulsion agents for herbicides, pesticides, miticides, fungicides or bacteriocides, car drying aid sprays, or drilling fluid additives.

ADVANTAGE - The quaternary ammonium compounds have good biodegradability and good soft handling and rewetting power for fabrics. They also have the ability to impart to fabric (e.g. articles of clothing, textiles) properties including softness to the touch, ease of handling, increased lubricity and a reduced tendency to carry or pick up static electricity. They can impart softness, lubricity, and improve the surface appearance of the skin or hair. They also have the ability to disperse hydrophobic material, to stabilize foam, and to enhance the penetration and wetting exhibited by the compositions.

Dwg.0/0

TECH .

UPTX: 20020204

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Preparation:

The quaternary ammonium compounds are preferably prepared by esterification of methylethanolisopropanolamine with fatty acids in the molar ratio of from 1:1.5 to 1:2 and subsequent quaternization. Preferred Compositions: Compositions containing the quaternary ammonium compounds may also contain surfactants, e.g. ammonium lauryl sulfate, any alpha-olefin sulfonate, ammonium xylene sulfonate, sodium pareth sulfate, betaines, sulfosuccinates, glycinate, hydroxysultaines, cocamidopropyl betaine, hydroxysultaine, disodium lauroamphodiacetate, sodium cocoamphopropionate, sodium lauryl sulfosuccinate, laurylbetaine, polyethylene glycol (PEG) 1-300 glyceryl cocoate, decyl glucoside, almondamide diethanolamine (DEA), myristamide DEA, stearamide DEA, isostearamide DEA, behenamide monoethanolamine (MEA), palmitamide MEA, hydroxyethyl stearamide methylisopropanolamine (MIPA), ricinoleamide MIPA, benenamine oxide, dihydroxyethylauramine oxide, hydrogenates palm kernel amine oxide, soyamidopropylamine oxide, tallowamine oxide, nonylphenol ethoxylates, 5-20C linear or branched alkoxyates using ethylene oxide (EO), propylene oxide (PO), butylene oxide (BO), amine ethoxylates, alpha-polyglucosides and mixtures. The compositions may also contain e.g. silicone compounds of the polydimethylsiloxane and cationically-modified polydimethylsiloxane type, hydroxypivalyl hydroxypivalate, 2,2,4-trimethyl-1,3-pentanediol (TMPD), TMPD alkoxyates, ethanol, isopropanol, 1,2-cyclohexanedimethanol, hexylene glycol, 2-butoxyethanol, 6-12C diols/triols and ester diols/triols and their alkoxyated derivatives, fatty acids, fatty amides, fatty alcohols, fatty oils, mineral oil, silicone oils, diglycerides, naphthalinic hydrocarbons, acetylated lanolin, ammonium hydrolyzed collagen, capryloyl hydrolyzed collagen, cocoyl hydrolyzed soy protein, glyceryl oleate, isocetyl stearate, jojoba oil, oleyl myristate, panthenol, stearyl citrate, wheat amino acids, beheneth-5, ceteth-10, corn oil PEG-8 esters, 12-13C pareth-10, isodeceth-6, oleoyl ethyl glucoside, PEG-11 cocamide, PEG-4 isostearamide, PEG-20 palmitate, PEG-16 tallate, polysorbate 20, trideceth-5 and mixtures.

L10 ANSWER 17 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1998-233612 [21] WPIDS

CR 1997-067243 [07]

DNC C1998-073001

TI **Preparation of fractionated soybean protein**

- and diet containing the protein, is useful as less allergenic diet for patient with soybean allergy.

DC D13

PA (FUKO) FUJI SEIYU KK

CYC 1

PI JP 10070959 A 19980317 (199821)* 5p

ADT JP 10070959 A JP 1996-177745 19960708

PRAI JP 1996-170342 19960628; JP 1995-196020 19950707

AB JP 10070959 A UPAB: 19980528

Preparation of a fractionated soybean protein

(FSBP) comprises: (a) treating the soybean protein with an aqueous solution (at most pH 4) containing sulphuric acid, acetic acid or citric acid, and an alkaline earth metal salt or hydroxide (0-200 mM); (b) removing the precipitate fraction; and (c) isolating a supernatant fraction. Also claimed is a diet containing (FSBP).

USE - The diet is especially useful as a reduced allergenic diet for a patient with an allergy to soybean protein.

ADVANTAGE - The (FSBP) has reduced allergenic characteristics and has

improved flavour, colour and gel strength. It is also easily produced in high yields.
Dwg.0/1

L10 ANSWER 18 OF 30 WPIDS (C) 2003 THOMSON DERWENT
AN 1997-172993 [16] WPIDS
DNC C1997-055215
TI **Soybean protein** contg. low allergen - is **prepd**
. by removing GLy mI from base unit having no alpha sub-units, useful as food additives.
DC B04 D13
PA (FUKO) FUJI SEIYU KK; (NORQ) NORINSUISANSHO TOHOKUNOGYO SHIKENJYO CHO
CYC 1
PI JP 09037720 A 19970210 (199716)* 6p
ADT JP 09037720 A JP 1995-195652 19950801
PRAI JP 1995-195652 19950801
AB JP 09037720 A UPAB: 19970417

Soybean protein contg. low allergen is **prepd**
. by removing Gly mI from base protein contg. no alpha subunits. Also claimed is a low-allergen **soybean protein**
prepd. from base **soybean** contg. no alpha-subunit.
Soybean protein extracted from base contg. no alpha subunit is treated using acidic aq. soln. of pH 3.5-5 contg. 90 mM or more of acetic anion, and 1200mM or more of chlorine ion, or using acidic aq. soln. of pH 2-4, contg. 3mM or more of polybasic acid or acetic acid or 600 mM or more of chlorine ion for selective **precipitation** of Gly mI to give the supernatant contg. low-allergen **soybean protein**. Supernatant is treated in electric reduction, or using reducing agents and purified.

USE - Low-allergen soybean protein are used as food additives soybean allergic diseases.

In an example, skimmed soybean (100g) contg. no alpha⁺, and alpha subunit was extracted in water (1500ml) contg. 1N NaOH at room temp. for 3 hrs. to give soybean milk. CaCl₂ (30 mM or 40 mM) was added to soybean milk, stirred in addn. of 2N **sulphuric** acid for pH of 2.8, and centrifuged to give supernatant, which was purified for removal of whey-protein in isoelectro **precipitation**, and electrophoresis to give low-allergen protein.

Dwg.0/4

L10 ANSWER 19 OF 30 WPIDS (C) 2003 THOMSON DERWENT
AN 1997-067243 [07] WPIDS
CR 1998-233612 [21]
DNC C1997-022090
TI **Prepn.** of fractionated **soybean proteins** for low allergenic food - comprises treating **soybean proteins** with aq. soln. contg. **sulphuric**, **acetic** or **citric** acid, removing **ppte.** and collecting supernatant.
DC D13
IN AKASAKA, T; MIYAZAKI, C; SAMOTO, M
PA (FUKO) FUJI OIL CO LTD
CYC 7
PI EP 752212 A2 19970108 (199707)* EN 7p
R: BE DE ES FR GB IT NL
ADT EP 752212 A2 EP 1996-304852 19960701
PRAI JP 1995-196020 19950707
AB EP 752212 A UPAB: 19980528

Prepn. of fractionated **soybean proteins** comprises: (a) treating **soybean proteins** with an aq. soln. having a pH of at most 4 and contg. **sulphuric** acid, **acetic**

acid or citric acid and opt. at most 200 mM of a salt or hydroxide of an alkaline earth metal; (b) removing the obtd. **pptn.** fraction and (c) collecting the supernatant fraction.

Pptn. fraction is obtd. from an aq. extract of **soybean proteins**. A soluble fraction from **soybean proteins** is **pptd.** with an acid. Treatment is effected at pH 2-4, the concn. of alkaline earth metal salt or hydroxide is 0-200 (pref. 10-100) mM and the obtd. fractionated **soybean protein** is 75 **soybean protein**. The **soybean proteins** are further treated with a reducing agent and/or under electrically reducing conditions before isolation of the supernatant fraction. The supernatant fraction is subjected to neutralisation, desalting, removal of whey, heat pasteurisation or drying.

USE - The proteins are used in food, pref. low allergenic food for patients allergic to soybeans.

ADVANTAGE - The proteins are simply obtd. in high yield and have improved brightness, clarity, flavour, taste and gel strength.
Dwg.0/1

L10 ANSWER 20 OF 30 WPIDS (C) 2003 THOMSON DERWENT
AN 1996-365467 [37] WPIDS
DNC C1996-115081
TI Whey mineral compsn., useful for calcium absorption stimulator - contains 1 alpha, 25-di hydroxy cholecalciferol, improving bone metabolism.
DC B01 D13
PA (MEIP) MEIJI MILK PROD CO LTD
CYC 1
PI JP 08173031 A 19960709 (199637)* 6p
ADT JP 08173031 A JP 1994-322124 19941226
PRAI JP 1994-322124 19941226
AB JP 08173031 A UPAB: 19960918

Whey mineral compsn. contains 1 alpha, 25-dihydroxycholecalciferol.

Prepn. of whey mineral compsn. comprises: (a) adsorption and sepn. of **protein** from **whey** by exposing **whey** to ion exchanger; and (b) condensn. of protein soln. adjusted at pH 5 to 9, cooling and filtration of the **pptd.** lactose.

Pref. compsn. contains 1 pg. to 1 microgram of 1 alpha, 25-dihydroxycholecalciferol per g. of whey compsn.

USE/ADVANTAGE - Used for calcium absorption stimulator (claimed) or organic food, animal feed and pharmaceuticals. 1 alpha, 25-Dihydroxycholecalciferol stimulates calcium absorption. The compsn. improves calcium absorption and bone metabolism.

In an example, a cation exchanger (4 l) (Indion S3: RTM) was placed in a tank rinsed with 0.1 N NaOH soln. followed by deionised water. Cheese whey (20 l) was infused into tank, and then 6 N **sulphuric** acid was added to adjust pH to 3.0. Cation exchanger was filtered and the filtered soln. was condensed using evaporator. Lactose micropowder was added to condensed soln. for crystallisation at 2 deg.C. Crystallised lactose was filtered and the filtered soln. was freeze-dried to form whey mineral compsn. (yield 350 g). Compsn. of 100 g contained 880 pg of 1 alpha, 25-dihydroxycholecalciferol.

Dwg.0/0

L10 ANSWER 21 OF 30 WPIDS (C) 2003 THOMSON DERWENT
AN 1995-311334 [40] WPIDS
DNC C1995-138626
TI Isolating proteins from **whey** for use in food
- by contacting whey or its concentrate with reagent which forms **sulphite** ions and oxidant then **precipitating** obtd.

whey protein. at acidic pH.
 DC D13
 IN SAVOLAINEN, J
 PA (SAVO-I) SAVOLAINEN J
 CYC 22
 PI WO 9522907 A1 19950831 (199540)* EN 26p
 RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
 W: AU JP NZ US
 FI 9400846 A 19950824 (199545)
 FI 9404110 A 19950824 (199545)
 AU 9517100 A 19950911 (199550)
 FI 96266 B 19960229 (199613)
 AU 681250 B 19970821 (199742)
 EP 796047 A1 19970924 (199743) EN
 R: CH DE DK ES FR GB IE IT LI NL SE
 JP 09509320 W 19970922 (199748) 23p
 NZ 279847 A 19971219 (199807)
 FI 101514 B1 19980715 (199835)
 US 5834042 A 19981110 (199901)
 EP 796047 B1 20011010 (200167) EN
 R: CH DE DK ES FR GB IE IT LI NL SE
 DE 69523170 E 20011115 (200176)
 ES 2165415 T3 20020316 (200227)
 ADT WO 9522907 A1 WO 1995-FI91 19950222; FI 9400846 A FI 1994-846 19940223; FI 9404110 A FI 1994-4110 19940907; AU 9517100 A AU 1995-17100 19950222; FI 96266 B FI 1994-846 19940223; AU 681250 B AU 1995-17100 19950222; EP 796047 A1 EP 1995-908975 19950222; WO 1995-FI91 19950222; JP 09509320 W JP 1995-522158 19950222; WO 1995-FI91 19950222; NZ 279847 A NZ 1995-279847 19950222; WO 1995-FI91 19950222; FI 101514 B1 FI 1994-4110 19940907; US 5834042 A WO 1995-FI91 19950222; US 1996-619666 19961114; EP 796047 B1 EP 1995-908975 19950222; WO 1995-FI91 19950222; DE 69523170 E DE 1995-623170 19950222; EP 1995-908975 19950222; WO 1995-FI91 19950222; ES 2165415 T3 EP 1995-908975 19950222
 FDT AU 9517100 A Based on WO 9522907; AU 681250 B Previous Publ. AU 9517100, Based on WO 9522907; EP 796047 A1 Based on WO 9522907; JP 09509320 W Based on WO 9522907; NZ 279847 A Based on WO 9522907; FI 101514 B1 Previous Publ. FI 9404110; US 5834042 A Based on WO 9522907; EP 796047 B1 Based on WO 9522907; DE 69523170 E Based on EP 796047, Based on WO 9522907; ES 2165415 T3 Based on EP 796047
 PRAI FI 1994-846 19940223
 AB WO 9522907 A UPAB: 19951011

Isolating proteins from whey comprises: (a) contacting whey or its concentrate with reagent which forms sulphite ions and an oxidant to sulphonate whey protein; (b) precipitating prod. of acidic pH; and (c) recovering pppte. from the prod. mixt. and opt. subjecting it to after-treatment. The oxidant is a food-grade oxidative cpd., substantially without catalyst. Temp. is 25-55 deg.C at which the oxidant reacts directly with the sulphitolyzed whey protein

Sulphite ion-forming reagent is an alkali(ne earth) metal sulphite, bisulphite, Na bisulphite and/or Na metabisulphite (esp. sodium bisulphite). Concn. of sulphite ion-forming reagent is such that concn. of sulphite in mixt. is 0.02-20 (esp. 0.05-0.1)m. Oxidative cpd. is a peroxide cpd. and/or halogenate (esp. CaO2 and/or KBrO3).

USE - Whey protein have improved nutritional value with regards to other food proteins and is used in human food.

ADVANTAGE - Whey protein is obtd. in a cost efficient manner. The prod. is maximally functional i.e. capable of emulsification, gel

formation and foaming.

Dwg.0/0

L10 ANSWER 22 OF 30 WPIDS (C) 2003 THOMSON DERWENT
 AN 1990-024001 [04] WPIDS
 CR 1990-001211 [01]; 1990-016034 [03]; 1990-024000 [04]; 1994-009445 [02]
 DNC C1990-010523
 TI Taste-modifier ~~comprises curculigo latifolia dried fruits or curuculin~~
 contg. material.
 DC B07 D13
 IN IKEDA, K; KATO, M; KOHNO, H; KURIHARA, Y; MIYAKE, M; IDEDA, K; MIYAKA, M;
 MASAKO, M
 PA (ASAE) ASAHI DENKA KOGYO KK; (KURI-I) KURIHARA Y
 CYC 18
 PI EP 351567 A 19900124 (199004)* EN 6p
 R: AT BE CH DE ES FR GB GR IT LI LU NL SE
 EP 351567 B1 19921007 (199004) EN
 R: AT BE CH DE ES FR GB GR IT LI LU NL SE
 DE 68903145 E 19921112 (199247)
 US 5178899 A 19930112 (199305) 4p
 ES 2052821 T3 19940716 (199430)
 CA 1337025 C 19950919 (199544)
 JP 2680637 B2 19971119 (199751) 4p
 SG 50520 A1 19980720 (199838)
 CN 1158704 A 19970910 (200141)
 CN 1158721 A 19970910 (200141)
 ADT EP 351567 A EP 1989-111180 19890620; EP 351567 B1 EP 1989-111180 19890620;
 DE 68903145 E DE 1989-603145 19890620; EP 1989-111180 19890620; US 5178899
 A Cont of US 1989-362877 19890607, US 1991-651060 19910205; ES 2052821 T3
 EP 1989-111180 19890620; CA 1337025 C CA 1989-602870 19890615; JP 2680637
 B2 JP 1988-277720 19881102; SG 50520 A1 SG 1996-3520 19890621; CN 1158704
 A Div ex CN 1989-104332 19890621, CN 1996-122699 19890621; CN 1158721 A
 Div ex CN 1989-104332 19890621, CN 1996-122700 19890621
 FDT EP 351567 B1 EP 347832; DE 68903145 E Based on EP 351567; ES 2052821 T3
 Based on EP 351567; JP 2680637 B2 Previous Publ. JP 02085209
 PRAI JP 1988-285476 19881111; JP 1988-153143 19880621; JP 1988-277717
 19881102; JP 1988-277718 19881102
 AB EP 351567 A UPAB: 20010724
 Fresh or dried Curucoligo latifolia fruits or a curuculin-contg. material
 obtained from the fruits are made into granules or a film.
 To make granules, the raw material is mixed with water, conc.
 granulated sugar, beef tallow and other known binders and the mixture is
 subjected to wet or dry granulation. If wet granulation is used it is
 pref. to dry the granules. To **prepare** film, the raw material is
 mixed with a thickener and a gelling agent, such as algae or their
 extracts, other natural polysaccharides, starch, guar gum, locust bean
 gum, an alainic acid **prepn.**, other thickeners, pectin,
 carrageenan, gelatin, agar or other gelling agents and water and the
 mixture is formed into a film by smearing, spraying or extruding followed
 by drying. There may also be added **soybean protein**,
 fats, oils and water to give a dried bean curd-type product. Pref., for
 either product, drying is effected at 90 deg. C or below. The particle
 size of the granules is pref. 0.1-3 mm., and the film thickness 0.05-1mm.
 The product may generally contain 0.001-5 wt. % of pure curuculin.
 USE/ADVANTAGE - The fresh or dried fruits or material obtained from
 them have use as taste-modifiers and the present granules or film are a
 stable form suitable for effectively exhibiting their taste-modification
 effect. These forms of the taste-modifier are superior to aq. solns. in
 that they are more stable and require less curuculin than aq. solns. do to
 achieve a desired taste-modifying effect.

Dwg.0/0

L10 ANSWER 23 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1986-162391 [26] WPIDS

DNC C1986-069558

TI Fractionating plant esp. soya protein into soluble and insol. parts - by treating with **sulphate**, glutathione or cysteine at alkaline pH and lowering ph, or electrolytic redn. in presence of these cpds..

DC D13

PA (FUKO) FUJI OIL CO LTD

CYC 5

PI BE 904225 A 19860529 (198626)* 34p

JP 61187755 A 19860821 (198640)

JP 61236795 A 19861022 (198649)

CN 86100959 A 19860813 (198717)

US 4771126 A 19880913 (198839)

JP 03065138 B 19911009 (199144)

JP 07020981 B2 19950308 (199514) 4p

ADT BE 904225 A BE 1986-904225 19860213; JP 61187755 A JP 1985-27925 19850214;

JP 61236795 A JP 1985-77257 19850411; US 4771126 A US 1987-63748 19870619;

JP 03065138 B JP 1985-27925 19850214; JP 07020981 B2 JP 1985-77257

19850411

FDT JP 07020981 B2 Based on JP 61236795

PRAI JP 1985-27925 19850214; JP 1985-77257 19850411

AB BE 904225 A UPAB: 19930922

Plant proteins are fractionated by treating a source of the proteins in an aq. system at a pH of 6.5 or higher, with a **sulphite**, a glutathione or a cysteine type cpd.. The pH is then adjusted to 5.5-7.0 at at most 20 deg.C so as to form a soluble or dispersible fraction and an insoluble or **pptd.** fraction.

Plant proteins composed of proteins 75 and 115 are fractionated by subjecting a source of the proteins to an electrolytic reduction in an aq. system. Plant proteins are fractionated by subjecting a source of the proteins to conditions of reduction in an aq. system at a pH in the range neutral to alkaline and then adjusted to 5.5-7.0 at at most 20 deg.C to form 2 fractions.

ADVANTAGE - The processes are partic. applicable to soya protein. They can be carried out on an industrial scale and give prods. with excellent aroma and flavour; partic. when soya proteins are used contg. soya carbohydrates, sepn. can be easily effected using continuous industrial centrifuge (e.g. a decanter).

0/6

L10 ANSWER 24 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1985-295960 [47] WPIDS

DNC C1985-128212

TI Electrolytic treatment of vegetable protein - esp. soy protein, improve whiteness and functionality.

DC D13

IN SHEN, J-L

PA (RALS) RALSTON PURINA CO

CYC 2

PI US 4551274 A 19851105 (198547)* 8p

CA 1252063 A 19890404 (198918)

ADT US 4551274 A US 1984-679099 19841206

PRAI US 1983-525513 19830822; US 1984-679099 19841206

AB US 4551274 A UPAB: 19930925

Vegetable protein material (I) is treated by (a) forming an aq. slurry of (I) of pH 4.5-8 and proteinaceous solids content 1-20 wt.%; and (b) reducing the slurry electrolytically. (I) contains disulphide bonds, which

are reduced in step (b).

Pref. (I) is acid pptd. and dried vegetable protein isolate, e.g. soy protein. A catalyst, e.g. a sulphhydryl reagent such as dithiothreitol or cysteine, may be present in the slurry at mole ratio catalyst:protein at least 1.5. Redn. takes place at 15-60 deg. C, current density at least 2 m amp/sq.m.

USE/ADVANTAGE - The whiteness of (I), and its functionality for food and industrial applications, is improved. The method of reducing the disulphide bonds is simpler and more efficient than prior methods. (I) is esp. soy protein.

0/2

L10 ANSWER 25 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1984-096256 [16] WPIDS

DNC C1984-040896

TI Granular immobilised enzyme compsn. - comprising hydrophilic binder, e.g. polyvinyl alcohol, and inert filler (BE 5.4.84).

DC A96 B04 D16

IN AMOTZ, S; MARKUSSEN, E; ROUGH, S; THOMSEN, K

PA (NOVO) NOVO IND AS

CYC 11

PI DE 3336235 A 19840412 (198416)* 29p

BE 897925 A 19840405 (198416)

NL 8303414 A 19840501 (198422)

JP 59085291 A 19840517 (198426)

DK 8304427 A 19840521 (198427)

FI 8303614 A 19840531 (198428)

FR 2541305 A 19840824 (198439)

US 4572897 A 19860225 (198611)

ES 8600392 A 19860101 (198613)

CA 1209936 A 19860819 (198638)

IT 1163946 B 19870408 (198928)

DE 3336235 C 19920130 (199205)

ADT DE 3336235 A DE 1983-3336235 19831005; BE 897925 A BE 1983-897925 19831005; NL 8303414 A NL 1983-3414 19831015; JP 59085291 A JP 1983-186081 19831006; FR 2541305 A FR 1983-15915 19831006; US 4572897 A US 1983-539305 19831005; ES 8600392 A ES 1983-526246 19831005

PRAI DK 1982-4430 19821006; DK 1982-4431 19821006

AB DE 3336235 A UPAB: 19971105

Compsns. comprise (1) a continuous phase of hydrophilic binder (I); (2) a discontinuous phase of finely-divided inert filler (II); both (I) and (II) being insol. in the reaction medium and (3) an enzyme immobilised on the binder at the granule surface.

Pref. (I) is a protein (esp. insolubilised with glutaraldehyde which also acts to bond the enzyme); protein hydrolysate; polysaccharides; or a synthetic material e.g., carboxymethyl-, methyl-, ethyl-, hydroxyethyl- or hydroxypropyl-celluloses; polyvinyl alcohol; polyvinyl pyrrolidone or Na silicate.

The granules are useful in enzymatic conversion processes in fixed, fluidised and vortex beds. They have adequate mechanical strength and are easily prepd. on an industrial scale using only simple chemical treatments at low cost. Most pref. the enzyme is glucose isomerase derived from *Bacillus coagulans*.

Dwg.0/0

L10 ANSWER 26 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1983-807678 [44] WPIDS

DNC C1983-107370

TI Soy protein concentrate having properties of isolate - prepd. by acid leaching, neutralisation of

solids and low temp. pasteurisation and drying.

DC D13

IN SAILER, D E

PA (CENS) CENTRAL SOYA CO

CYC 1

PI US 4410554 A 19831018 (198344)* 10p

PRAI US 1981-320295 19811112

AB US 4410554 A UPAB: 19930925

Soy protein concentrate is **prepd.** by (a) leaching a fine soy flour of NSI 65-75% with hydrochloric acid or phosphoric acid soln. at pH 4.4-4.6 and 60-90 deg.F in the absence of sulphur dioxide or **sulphite** salts, the water:flour ratio being 5-10:1 and total leaching time being not more than 1 hour; (b) sepg. the solids to obtain a wet cake of concentrate; (c) neutralising the wet cake to pH 6.5-7.5 using NaOH or KOH; (d) pasteurising the cake at a relatively low temp. and (e) drying it at a low temp. to obtain a prod. having a NSI of at least 70%, which is heat gellable to a viscosity of at least 5,000 poise, which viscosity is maintained a heat formed gel in the presence of 3% NaCl, and has a water-holding capacity of at least 58 per g and frying losses in meat emulsions of below 12%.

The prod. has the functionality of **soy protein isolates** but is cheaper to produce.

0/1

L10 ANSWER 27 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1982-38049E [19] WPIDS

TI Deodorisation of crude corn gluten to make it edible - by adding sodium hypochlorite to aq. dispersion, adjusting pH to 3-6, dehydrating and then washing with water and adding ethanol.

DC D13

PA (NISO) NIPPON SHOKUJIN KAKO KK

CYC 1

PI JP 57054564 A 19820401 (198219)* 7p

JP 61056987 B 19861204 (198701)

ADT JP 57054564 A JP 1980-129109 19800919

PRAI JP 1980-129109 19800919

AB JP 57054564 A UPAB: 19930915

Corn gluten obtd. as byprod. of corn starch **prepn.** has specific disagreeable odour due to **sulphite** and its use is restricted to feed, protein source of culture medium etc. in spite of its nutritive value. The specific odour of corn gluten can be removed and the obtd. corn gluten can be used widely as food material similarly as **soy bean protein**, wheat gluten etc.

As starting material the con. slurry (solid concn. 10-20%) or the filter cake (solid concn. 40-50%) obtd. by dehydrating the slurry, can be used.

The method comprises (a) dispersing starting crude corn gluten in water, (b) adding sodium hypochlorite to the dispersion so that effective chlorine is 0.1-2.0% on solids in crude corn gluten, (c) pH is adjusted to 3.0-6.0, (d) the mixt. is dehydrated, (e) washed with water, (f) and redispersed again in water, (g) and ethanol is added to the dispersion so that ethanol is 1-10% on the solid in starting crude corn gluten, (h) followed by dehydrating (i) drying and (j) opt. pulverising it.

L10 ANSWER 28 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1980-05761C [04] WPIDS

TI Whippable compsn. which can replace egg albumen in baking - comprising whey protein, enzyme hydrolysed wheat protein, and gelatin, poly phosphate or gum.

DC D13

IN CHANG, P K; EASLEY, J W

PA (STAU) STAUFFER CHEM CO

CYC 3

PI EP 7054 A 19800123 (198004)* EN

R: DE FR NL

PRAI US 1978-922898 19780710; US 1978-926682 19780721

AB EP 7054 A UPAB: 19930902

Whippable compsn. comprises (a) ≥ 70 % of a prod. having ≥ 20 pts. soluble whey protein per 100 pts. dry prod.; (b) 1-10% gelatin, opt. with 5-15% of a water-soluble polyphosphate e.g. sodium hexametaphosphate (the additive total of gelatin and phosphate not exceeding 15%); and/or 0.5-5% of a gum e.g. carrageenan, ~~acacia~~ and (c) 5-30% of enzyme hydrolysed wheat protein.

The whey protein-contg. prod. (a) is chosen from:

(1) a whey protein concentrate derived from the ultrafiltration of cottage cheese; (2) a water-sol. low mol. wt. prod. **prepd.** by (i) adjusting the pH of a whey protein -contg. conn. to 11-13, (ii) reducing the pH to 4-6 to yield a water soln. of a soluble whey prod. and insoluble whey solids (iii) sepg. the soluble prod. and (iv) drying it; (3) a prod. **prepd.** by hydrolysing the insol. whey solids of (2) (ii) at pH 11-13; and (4) a **pptd.**

whey protein **prepd.** by combining liq.

whey with Na lauryl sulphate to form a complex which

pptes. from soln., followed by reducing the Na lauryl

sulphate content of the complex to $< 0.1\%$.

(All percentages are by wt., based on total wt. of the whey protein - contg. compsn.).

Compsns. **prepd.** using the whey protein

described in (1) or (2) can be used as egg albumen replacers in whipped products such as meringues, nougat candy and divinity candy. Compsns.

prepd. using the whey protein described in

(1), (3) or (4) can be used as egg albumen replacers in **preparing** soft meringues and cakes such as yellow or sponge cake.

L10 ANSWER 29 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1979-65620B [39] WPIDS

CR 1987-275568 [39]

TI Prepn. of fried bean curd used as instant noodle - from highly denatured defatted soybean by immersing in aq. **sulphite** soln., extracting protein, coagulating, etc. and frying.

DC D13

PA (SUGY) SUGIYAMA SANGYO KAGAKU KENKYUSHO

CYC 1

PI JP 54095762 A 19790728 (198739)*

PRAI JP 1978-1040 19780109; JP 1978-4837 19780120

AB JP 54095762 A UPAB: 19930901

Curd is sepd. by (a) immersing the highly denatured defatted soy bean previously crused to above 60 mesh and having NSI < 30 , in an aq. soln. of the **sulphite**, of which amt. is 0.1-0.5 w/w% on the defatted soy bean, (b) adjusting pH of the immersing soln. to 1-3 with acid to extract protein, (c) IEP-coagulating protein by adjusting its pH to 4.0-4.5 with alkali and (d) dehydrating the coagulated protein. The dough for fried bean curd is **prepd.** by combining starch or grain powder, of which amt. is 20-40 w/w% on dry solid of the sepd. curd; and NaHCO_3 , of which amt. is enough to make pH of the sepd. curd 5.5-7.0, in the sepd. curd and kneading the mixt. The dough is moulded and fried.

The fried bean curd which has tough structure and can retain its shape during its processing, is **prepd.** cheaply in high yield from highly denatured defatted soy bean of NSI < 30 .

L10 ANSWER 30 OF 30 WPIDS (C) 2003 THOMSON DERWENT

AN 1978-23340A [13] WPIDS
 TI **Modified whey protein prod.** with good whipping properties - is used with gelatin or a gum as a replacement for egg white in e.g. meringue.
 DC A97 D13
 PA (KROG-N) KROGER CO; (STAU) STAUFFER CHEM CO
 CYC 11
 PI BE 858970 A 19780323 (197813)*
 DE 2741670 A 19780330 (197814)
 NL 7709332 A 19780329 (197815)
 SE 7710633 A 19780417 (197818)
 NO 7703244 A 19780424 (197820)
 JP 53041457 A 19780414 (197821)
 FR 2365297 A 19780526 (197825)
 US 4089987 A 19780516 (197827)
 GB 1589742 A 19810520 (198121)
 CA 1107126 A 19810818 (198140)
 CH 633682 A 19821231 (198303)
 PRAI US 1976-726031 19760923
 AB BE 858970 A UPAB: 19930901
 Beatable whey protein compsn. comprises (1) a whey protein prod. with ≥ 20 wt. % (on total solids) of soluble whey protein and consisting of (a) a whey protein concentrate made by ultrafiltration of cheese whey; (b) a water soluble low molecular whey protein prod. made by adjusting the pH of a soln. contg. whey protein to 11-13, then lowering the pH to 4-6 to form an aq. soln. of a water soluble whey prod. and to **pppte.** an insol. solid whey material and water soluble whey end prod. % (a) a high molecular whey protein prod. made by hydrolysing the insol. solid material from stage (b) at a pH of about 11-13 and (d) **pptd.** whey protein complex made by combining liq. whey with a suitable mat. of Na lauryl **sulphate** to **pppte.** the complex from the soln., and lowering the Na lauryl **sulphate** content of the complex to < 0.1 wt. % based on the dry wt. of the complex; and (2) gelatin, a mixt. of gelatin and a water soluble polyphosphate, a gum, or mixts. of these.
 The prods. have good whipping properties and are cheaper to produce than prior art whey-based whipping materials. They are easier to make and have a less pronounced taste than compsns. based on treated soya proteins. The prods. are useful in food applications for aeration of materials such as meringue, cakes, etc, as a substitute for egg white.

=> fil biosis

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FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 8 January 2003 (20030108/ED)

=> d his

FILE 'BIOSIS' ENTERED AT 13:49:34 ON 09 JAN 2003

L1 13365 S PROTEIN# (5A) (SOY? OR WHEY?)
L2 3625 S L1 (S) (ISOLAT? OR PREP# OR PREPAR? OR MODIF?)
L3 5773 S SULFIT? OR SULPHIT?
L4 8 S L3 AND L2
L5 31 S L3 AND L1
L6 3 S L5 AND (PRECIP? OR PPT#)
L7 358 S L1 (S) RECOVER?
L8 2 S L7 AND L3
L9 10 S L8 OR L6 OR L4

=> d bib ab L9 it 1-10

L9 ANSWER 1 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 2002:632679 BIOSIS

DN PREV200200632679

TI Effects of simultaneous heat and reducing treatments on some structural characteristics of soy isolates obtained at pilot plant scale.

AU Remondetto, G. E.; Gonzalez, R. J. (1); Anon, M. C.

CS (1) Facultad de Ingenieria Quimica, Instituto de Tecnologia de Alimentos (ITA), Universidad Nacional del Litoral, Ciudad Universitaria "Paraje El Pozo", 3000, C.C. 266, Santa Fe: rolgonza@figus.unl.edu.ar Argentina

SO Food Science and Technology International, (August, 2002) Vol. 8, No. 4, pp. 223-228. print.
ISSN: 1082-0132.

DT Article

LA English

AB The influence of simultaneous heat and reducing treatment on some structural **soy isolate** characteristics such as **protein** denaturation enthalpy, free sulphhydryl groups and disulphide bonds contents were studied through the surface response methodology. The model obtained showed that denaturation enthalpy was mainly affected by treatment temperature and that **sulphite** effect depended on the temperature. At low temperature, **sulphite** stimulated the denaturation process by reducing the temperature at which denaturation began, while at high temperature a stabilisation effect was observed. A maximum **sulphitolysis** activity was observed in the temperature range of 67-75degreeC and between 0.35 and 0.5% **sulphite** concentration, in which the reaction efficiency is improved. These results showed the existence of a critical temperature above which the rupture of disulphide bonds would increase the molecular flexibility. The occurrence of new disulphide bonds could favor the formation of aggregates by the production of new disulphide bonds, others reactions, such as the interaction between the polypeptide B of glycinin

and the subunits beta of the beta-conglycinin could also play an important role.

IT Major Concepts
 Foods
 IT Chemicals & Biochemicals
 disulfide bonds: analysis; free sulfhydryl groups: analysis;
 polypeptides: analysis; proteins: analysis, denaturation studies
 IT Miscellaneous Descriptors
 food processing; food quality; pilot plant scale studies; protein
 subunit interactions: analysis; **soy protein**
isolates: analysis, heat treatment effects, **preparation**
 , processing, quality, reducing treatment effects, structural studies,
 uses; thermodynamics

L9 ANSWER 2 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 2001:176306 BIOSIS

DN PREV200100176306

TI Influence of chemical **modification** of **whey**
protein conformation on hydrolysis with pepsin and trypsin.

AU Kananen, A.; Savolainen, J. (1); Makinen, J.; Perttila, U.; Myllykoski,
 L.; Pihlanto-Leppala, A.

CS (1) Kuurinniityntie 26, FIN-02750, Espoo: j.savolainen@unig.pp.fi Finland

SO International Dairy Journal, (2000) Vol. 10, No. 10, pp. 691-697. print.
 ISSN: 0958-6946.

DT Article

LA English

SL English

AB The **whey protein** conformation was modified
 by **sulfitolysis**. The modified **whey**
protein was fractioned into the **precipitate** and soluble
 fractions by lowering pH. The modified **whey**
proteins and the two **protein** fractions were hydrolyzed
 with pepsin and trypsin. The modified **whey**
proteins hydrolyzed more readily than intact proteins, and the
 formation of the peptides <2000 Da correlated with the rate of the
 hydrolysis of both proteins. The rate of the hydrolysis of the
precipitate fraction was higher than that of the soluble fraction,
 while the rate of the intact protein was variably lower or higher than
 that of the soluble fraction. Generally, the rate of the formation of
 peptides <2000 Da correlated with that of the hydrolysis of both
 fractions. The beta-lactoglobulin antigenicity of both fractions decreased
 markedly during pepsin hydrolysis and approached zero in trypsin
 hydrolysis within 30 min.

IT Major Concepts
 Enzymology (Biochemistry and Molecular Biophysics); Foods

IT Chemicals & Biochemicals
 beta-lactoglobulin: antigenicity; pepsin; protein: conformation;
 trypsin

IT Methods & Equipment
 hydrolysis: food processing method; **sulfitolysis**: food
 processing method

IT Miscellaneous Descriptors
 whey: dairy product

RN 9001-75-6 (PEPSIN)

9002-07-7 (TRYPSIN)

L9 ANSWER 3 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 1998:76099 BIOSIS

DN PREV199800076099

TI Effect of sodium sulfite, sodium bisulfite, cysteine, and pH on

protein solubility and sodium dodecyl sulfate-polyacrylamide gel electrophoresis of soybean milk base.

AU Abtahi, Setarèh; Aminlari, Mahmoud (1)

CS (1) Dep. Biochemistry, Sch. Veterinary Med., Shiraz Univ., Shiraz 71345 Iran

SO Journal of Agricultural and Food Chemistry, (Dec., 1997) Vol. 45, No. 12, pp. 4768-4772.
ISSN: 0021-8561.

DT Article

LA English

AB Protein **modification** is often used to improve the functional properties of proteins in many different food products. The purpose of this study was to investigate the effect of **modification** of **soy proteins** with sodium sulfite, sodium bisulfite, and cysteine on the **protein solubility** of a **soy milk base**, as determined by **protein dispersibility index (PDI)**. An increase in the PDI was observed at 6-8 mmol/L concentration of each reagent; the most effective was sodium bisulfite, followed by sodium **sulfite** and cysteine. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) showed that chemical treatments resulted in an increase in the intensity of several bands with molecular weights of 16 000-20 000, 32 000-42 000, 60 000, and 90 000, which correspond to the polypeptides of the two major **proteins** of **soybean**, i.e., 11S (glycinin) and 7S (beta-conglycinin) globulins. These data suggest that the chemical treatment has cleaved the disulfide bonds which link the polypeptides, thereby increasing the PDI. pH has a significant effect on PDI; the highest PDI was obtained at pH 9, and the intensity of several protein bands in SDS-PAGE increased with increase in pH from 6 to 9. Freezing soy milk base at -18degree C for 1-4 weeks resulted in a drastic decline in the PDI.

IT Major Concepts
Biochemistry and Molecular Biophysics; Foods; Methods and Techniques

IT Chemicals & Biochemicals
beta-conglycinin; cysteine; glycinin; sodium bisulfite; sodium **sulfite**

IT Methods & Equipment
SDS-polyacrylamide gel electrophoresis

IT Industry
food industry

IT Miscellaneous Descriptors
protein solubility; soybean milk

RN 7757-83-7 (SODIUM **SULFITE**)
7631-90-5 (SODIUM BISULFITE)
52-90-4Q (CYSTEINE)
3374-22-9Q (CYSTEINE)
7440-23-5 (SODIUM)

L9 ANSWER 4 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 1997:221439 BIOSIS

DN PREV199799513155

TI Effect of drying methods on molecular properties and functionalities of disulfide bond-cleaved soy proteins.

AU Kalapathy, U.; Hettiarachchy, N. S. (1); Rhee, K. C.

CS (1) Univ. Arkansas, Dep. Food Sci., 272 Young Ave., Fayetteville, AR 72704 USA

SO Journal of the American Oil Chemists' Society, (1997) Vol. 74, No. 3, pp. 195-199.
ISSN: 0003-021X.

DT Article

LA English

- AB Effects of drying methods on hydrophobicity, solubility, water hydration capacity, viscosity, and adhesive strength of **soy protein isolates** treated with Na-2SO-3 (disulfide bond-cleaving agent) were investigated. Treatment with 0.1 M Na-2SO-3 resulted in 28% decrease in disulfide linkages in **soy proteins**. While hydrophobicity and solubility increased, water-holding capacity of **soy proteins** decreased due to the treatment. Spray-dried product had higher hydrophobicity, solubility, water hydration capacity, and viscosity compared to freeze-dried product. Adhesive strength on wood increased due to **modification**; however, the drying process had no significant effect on this property. Viscosities of spray-dried product, freeze-dried product, and unmodified **soy proteins** were 2,200, 100, and 240 cP, respectively. Fluorescence spectra of spray-dried and freeze-dried products indicated a partial folding of molecules around tryptophan. High-performance liquid chromatographic elution profiles showed no significant differences in molecular sizes of unfolded molecules of spray-dried and freeze-dried proteins.
- IT Major Concepts
Biochemistry and Molecular Biophysics; Forestry; Methods and Techniques
- IT Chemicals & Biochemicals
DISULFIDE; SODIUM **SULFITE**
- IT Miscellaneous Descriptors
ANALYTICAL METHOD; BIOBUSINESS; BIOCHEMISTRY AND BIOPHYSICS; DISULFIDE BOND-CLEAVED; DRYING METHODS; FLUORESCENCE SPECTRA; FREEZE DRYING; FUNCTIONALITIES; HIGH PERFORMANCE LIQUID CHROMATOGRAPHY; MOLECULAR PROPERTIES; SODIUM **SULFITE**; SOY PROTEINS; SPRAY DRYING; WOOD ADHESIVE INGREDIENTS; WOOD ADHESIVES
- RN 16734-12-6 (DISULFIDE)
7757-83-7 (SODIUM **SULFITE**)
- L9 ANSWER 5 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1995:452823 BIOSIS
DN PREV199598467123
TI Partial reduction of **soy protein isolate**
~~disulfide bonds~~
- AU Petruccelli, Silvana; Anon, Maria Cristina (1)
CS (1) Cent. Invest. Desarrollo Criotecnol. Alimentos, Consejo Nac. Invest. Cient. Tec., Fac. Ciencias Exactas, Univ. Nacl. de La Plata, Calle 47 116, 1900 La Plata Argentina
SO Journal of Agricultural and Food Chemistry, (1995) Vol. 43, No. 8, pp. 2001-2006.
ISSN: 0021-8561.
DT Article
LA English
AB Partial reduction of disulfide bonds of **soy protein isolates** was followed electrophoretically. **Isolates** treated with Na-2SO-3 under different conditions showed disappearance of high molecular weight aggregates. Acidic and basic 11S polypeptides and some **whey proteins** that remain in the **isolates** were also affected; reduction of the AB-11S subunit was very limited. The **sulfitolysis** method was also studied. The addition of a catalyst (Cu) and oxygen showed a similar effect in the **sulfitolysis** of **soy proteins** with Na-2SO-3. To achieve complete **sulfitolysis**, the presence of a denaturing and an oxidizing agent were needed. Mainly AB subunits of glycinin were reduced when urea was used, while mostly components other than AB-11S subunits were reduced when Na-2SO-3 was used in the presence of Cu and/or oxygen.
- IT Major Concepts
Biochemistry and Molecular Biophysics; Foods; Methods and Techniques;

Nutrition

IT Chemicals & Biochemicals
DISULFIDE; COPPER; OXYGEN; UREA

IT Miscellaneous Descriptors
ANALYTICAL METHOD; COPPER CATALYST; ELECTROPHORESIS; FOOD CHEMISTRY;
FOOD PRODUCTS; FOOD PROTEINS; MOLECULAR STRUCTURE; OXYGEN;
POLYPEPTIDES; SUBUNIT; **SULFITOLYSIS**; UREA

RN 16734-12-6 (DISULFIDE)
7440-50-8 (COPPER)
7782-44-7 (OXYGEN)
57-13-6 (UREA)

L9 ANSWER 6 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1991:386365 BIOSIS
DN BA92:63680
TI **SULFITOLYSIS OF WHEY PROTEINS EFFECTS ON EMULSION PROPERTIES.**
AU KLEMASZEWSKI J L; KINSELLA J E
CS INST. FOOD SCI., CORNELL UNIV., ITHACA, N.Y. 14853.
SO J AGRIC FOOD CHEM, (1991) 39 (6), 1033-1036.
CODEN: JAFCAU. ISSN: 0021-8561.
FS BA; OLD
LA English
AB **Whey protein isolate was modified**
by oxidative **sulfitolysis** to cleave 50%, 75%, and 100% of the
total disulfide bonds. The volume fraction of oil emulsified and the
emulsion activity index improved as the degree of **sulfitolysis**
was increased from 0% to 100%. The volume of surface droplet diameter
(dvs) of these emulsions was observed to decrease with increasing
sulfitolysis, and the coalescence rate decreased with the extent
of **sulfitolysis**.

IT Miscellaneous Descriptors
DISULFIDE BOND CLEAVAGE SURFACE DROPLET DIAMETER COALESCENCE RATE
FUNCTIONAL INGREDIENT QUALITY ANALYSIS FOOD PROCESSING

RN 16734-12-6 (DISULFIDE)

L9 ANSWER 7 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1991:69411 BIOSIS
DN BA91:38071
TI **RECOVERY OF PROTEINS FROM RAW SWEET WHEY**
USING A SOLID STATE SULFITOLYSIS.
AU GONZALEZ J M; DAMODARAN S
CS DEP. FOOD SCI., UNIV. WISCONSIN-MADISON, 1605 LINDEN DR., MADISON, WI
53706.
SO J FOOD SCI, (1990) 55 (6), 1559-1563.
CODEN: JFDSA. ISSN: 0022-1147.
FS BA; OLD
LA English
AB A simple, efficient method to **recover** functional
proteins from cheese **whey** was developed. It involves
partial **sulfitolysis** of disulfide bonds in **whey**
proteins using sodiums **sulfite** and solid state copper
carbonate catalyst. About 25 to 40% of the initial disulfide bonds were
modified within 15 to 30 min at pH 7.0. When treated whey was
adjusted to acidic pH, about 70 to 80% of the **whey**
proteins precipitated below pH 5.0. The protein
precipitate contained some copper as protein-copper complex.
However, **extraction of the precipitate** with EDTA at pH 4.5
completely removed the copper. The uncomplexed protein showed a U-shaped
pH-solubility profile with 100% solubility below pH 3.0 and above 6.0.
About 90% of the proteins **precipitated** in the pH range 4.0 to

5.0. The method could be used on an industrial scale to **recover** highly functional and nutritional **whey protein** for use in a variety of products.

IT Miscellaneous Descriptors

SODIUM **SULFITE** COPPER CARBONATE WASTE MANAGEMENT DAIRY
INDUSTRY FOOD PROCESSING INDUSTRY

RN 7757-83-7 (SODIUM **SULFITE**)

1184-64-1Q, 7492-68-4Q (COPPER CARBONATE)

L9 ANSWER 8 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 1989:507411 BIOSIS

DN BR37:117070

TI **RECOVERY OF WHEY PROTEINS FROM RAW SWEET
WHEY USING A SOLID STATE SULFITOLYSIS METHOD.**

AU GONZALEZ J; DAMODARAN S

CS UNIV. WISCONSIN-MADISON.

SO COMBINED MEETING OF THE AMERICAN DAIRY SCIENCE ASSOCIATION AND THE
AMERICAN SOCIETY OF ANIMAL SCIENCE, LEXINGTON, KENTUCKY, USA, JULY
31-AUGUST 4, 1989. J DAIRY SCI. (1989) 72 (SUPPL 1), 137.

CODEN: JDSCAE. ISSN: 0022-0302.

DT Conference

FS BR; OLD

LA English

IT Miscellaneous Descriptors

ABSTRACT SODIUM **SULFITE** CHEESE COPPER CATALYST SOLUBILITY
FOAMING EMULSIFYING DAIRY INDUSTRY FOOD INDUSTRY FOOD PROCESSING
INDUSTRY

RN 7440-50-8 (COPPER)

7757-83-7 (SODIUM **SULFITE**)

L9 ANSWER 9 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 1987:358075 BIOSIS

DN BA84:55478

TI ISOLATION OF RAPESEED PROTEINS IN ACID MEDIUM EFFECT OF TREATMENT ON YIELD
AND PHYSICOCHEMICAL AND NUTRITIONAL PROPERTIES.

AU BAU H M; MOHTADI-NIA D J; GIANNANGELI F; DEBRY G

CS INST. NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE, GROUPE DE
RECHERCHES DE NUTRITION ET DIETETIQUE, 38 RUE LIONNOIS, 54000 NANCY,
FRANCE.

SO SCI ALIMENTS, (1987) 8 (2), 337-360.

CODEN: SCALDC. ISSN: 0240-8813.

FS BA; OLD

LA French

AB A simple process of **isolating** rapeseed protein products from a French rapeseed variety "Jet Neuf" (Brassica napus) has been studied. For the purpose of obtaining processed products for human and animal consumption, technical feasibility has been evaluated from the viewpoint of the effect of processing conditions on the extraction yield of nitrogen and lipid and on the chemical, physico-chemical and nutritional properties of the processed products. A protein **isolate** was **prepared** from 95% dehulled seeds. The defatting process was carried out on ground seeds by hexane in a soxhlet with reflux. The defatted powder was suspended in a sodium **sulfite** solution (0.3%), pH 12, at the ambient temperature for 1 h with agitation. The soluble proteins were purified at pH 4.5 with the addition of hydrochloric acid 1 N. The **isolate** (IP) and the fraction insoluble at pH 12 (FNS) were washed with 80% ethanol. The nitrogen yield was 47.7% for IP and more than 21% for FNS. IP and FNS represented more than 70% of the total proteins of seeds. They contained a small quantity of antinutritional factors and had a well-balanced amino acid composition;

thus they had a very high nutritional value. The zinc, copper, calcium and magnesium contents of these products were also determined. When the pH of the IP solution was higher than 6, the solubility curve as a function of pH was close to that of **soybean proteins**.

IT Miscellaneous Descriptors

BRASSICA-NAPUS FOOD PROCESSING NITROGEN LIPID PH MINERALS SOYBEAN
PROTEIN COMPARISON

RN 7727-37-9 (NITROGEN)

L9 ANSWER 10 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 1979:270774 BIOSIS

DN BA68:73278

TI INFLUENCE OF HEATING TEMPERATURE ON CONFORMATIONAL CHANGES OF
SOYBEAN PROTEINS.

AU HASHIZUME K; WATANABE T

CS NATL. INST. ANIM. IND., MINIST. AGRIC. FOR., AOBA, CHIBA, JPN.

SO AGRIC BIOL CHEM, (1979) 43 (4), 683-690.

CODEN: ABCHA6. ISSN: 0002-1369.

FS BA; OLD

LA English

AB Changes of ultracentrifugal patterns of **soybean proteins** by heating up to 100.degree. C were almost completed at 80.degree. C at lower ionic strength and at 90.degree. C at higher ionic strength. Changes in DTNB [5,5'-dithiobis(2-nitrobenzoic acid)] reactive sulfhydryl groups, **sulfite** reducible disulfide bonds, UV difference spectra and turbidity of the protein solutions were still observed at temperatures higher than 80.degree. or 90.degree. C. 11S protein apparently dissociates into subunits at a temperature below 80.degree. or 90.degree. C and the conformations of these subunits can change at a temperature above 80.degree. or 90.degree. C. When heated at high ionic strength, the protein solution became turbid because of aggregation of proteins. SDS [sodium dodecyl sulfate] polyacrylamide gel electrophoresis showed that aggregated proteins separated by centrifugation as **precipitates** were formed from low-molecular-weight subunits of 11S protein and that non-aggregated proteins remaining in the supernatant were from 7S protein and high-molecular-weight subunits of 11S protein.

IT Miscellaneous Descriptors

ULTRA CENTRIFUGAL PATTERNS SUBUNITS MOLECULAR WEIGHT